TRANSACTIONS

AMERICAN ACADEMY
of
OPHTHALMOLOGY
and
OTOLARYNGOLOGY

NOVEMBER - DECEMBER
1961

Volume 65 No. 6

ANNUAL MEETING, NOVEMBER 4-9, 1962, LAS VEGAS

for

OTITIS EXTERNA
FURUNCULOSIS
OTOMYCOSIS
OTITIS MEDIA

Otamylon® and Otamylon® with Hydrocortisone

EAR DROPS

BACTERICIDAL
FUNGICIDAL
ANALGESIC
HYGROSCOPIC

Manner of Use:
After gently cleansing and drying the ear canal, Otamylon (2 or 3 drops or moistened wick) is applied three or four times daily.

Supplied:
Otamylon—bottles (15 cc.) with dropper.
Otamylon ē Hydrocortisone–15 cc. combination package to be mixed prior to dispensing.

Otamylon is a clear, odorless, sterile, viscid liquid containing:
Sulfamylon® HCl 5%
Benzocaine 5%
Anhydrous glycol q.s. 100

Otamylon with Hydrocortisone:
Same formula with 0.02% hydrocortisone.

Winthrop LABORATORIES
New York 18, N.Y.

Otamylon and Sulfamylon (brand of mafenide), trademarks reg. U. S. Pat. Off.

TRANSACTIONS

American Academy of Ophthalmology and Otolaryngology

VOLUME 65 NOVEMBER - DECEMBER, 1961 NUMBER 6

TABLE OF CONTENTS

PAGE

SEQUESTRATION CYSTS OF THE FLOOR OF THE MOUTH 831
LORING W. PRATT, M.D.

PSYCHOLOGICAL CONSIDERATIONS IN THE MANAGEMENT OF CANCER OF THE EAR, NOSE AND THROAT 841
DANIEL MILLER, M.D.

RECONSTRUCTIVE SURGERY FOR THE ADULT CLEFT PALATE CRIPPLE 848
ORION H. STUTEVILLE, D.D.S., M.D.
CHARLES JANDA, D.D.S., M.D.

GENERAL PRINCIPLES OF LATERAL OSTEOTOMY AND HUMP REMOVAL 854
WILLIAM K. WRIGHT, M.D.

SYMPOSIUM: EXOPHTHALMOS

INTRODUCTION 862
EDMUND B. SPAETH, M.D.

DIFFERENTIAL DIAGNOSIS 863
JOHN WOODWORTH HENDERSON, M.D.

TREATMENT OF EXOPHTHALMOS ASSOCIATED WITH THYROID DYSFUNCTION 871
ROBERT M. DAY, M.D.

SURGICAL TREATMENT 873
HOWARD NAQUIN, M.D.

MANAGEMENT OF SECONDARY FACTORS 878
JOHN M. MCLEAN, M.D.

DISCUSSION 882

(Continued on Next Page)

Printed bimonthly, February, April, June, August, October and December, by the Douglas Printing Company, 109 North 18th Street, Omaha 2, Nebraska, for the American Academy of Ophthalmology and Otolaryngology. Editorial and business office, 15 Second Street S.W., Rochester, Minnesota. Subscription price $10.00 yearly. Second class postage paid at Omaha, Nebraska.

TABLE OF CONTENTS *(Continued)*

PAGE

Pulsating Enophthalmos in Association with Neurofibromas of the Eyelid 885

Oliver H. Dabezies, Jr. (M.D.), Capt. MC
Frank B. Walsh, M.D.

Chondrosarcoma of the Orbit 898

Monte G. Holland, M.D.
James H. Allen, M.D.
Herbert Ichinose, M.D.

How Much Training in Research Should Be a Part of Graduate Training? 906

William L. Benedict, M.D., et al.

EDITORIAL

Why Las Vegas? 925

Letter to the Editor 926

In Memoriam 928

Council Minutes 930

Annual Business Meeting 945

Committee Reports 955

Convention Attendance, October 8-13, 1961 982

Past Officers of the Academy 983

News and Announcements XXXI

Positions Available XXXVII

Listing of Audiometers XXXVIII

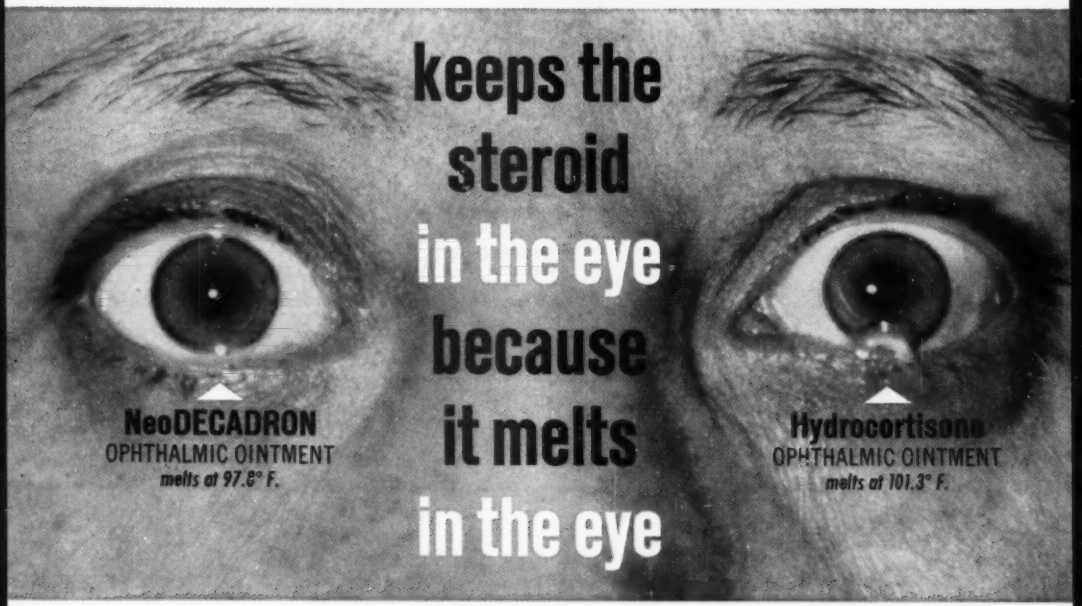
Book Reviews 989

Index of Authors 992

Index of Subjects 995

NeoDecadron®

DEXAMETHASONE 21-PHOSPHATE—NEOMYCIN SULFATE **OPHTHALMIC OINTMENT**



FOR:

GREATER EFFECTIVENESS—NeoDECADRON Ophthalmic Ointment melts at body temperature . . . providing optimal coverage of optimal concentration at the site of the lesion—it does not "pop out" on the lid.

ACTIVITY—dexamethasone 21-phosphate for unexcelled topical activity and solubility plus neomycin sulfate for broad antibiotic protection.

CONVENIENCE—in addition to NeoDECADRON Ophthalmic Ointment, NeoDECADRON® Ophthalmic Solution is available—a dosage form for every need.

INDICATIONS: Trauma—mechanical, chemical or thermal; inflammation of the conjunctiva, cornea, or uveal tract involving the anterior segment; allergy; blepharitis.

PRECAUTION: Steroid therapy should never be employed in the presence of tuberculosis or herpes simplex.

Before prescribing or administering NeoDECADRON Ophthalmic Ointment or Solution, the physician should consult the detailed information on use accompanying the package or available on request.

DOSAGE: Ophthalmic Ointment: Instill three or four times daily. Ophthalmic Solution: One drop four to six times daily. Dosage may be adjusted up or down, depending upon the severity of the disorder.

SUPPLIED: The ointment is supplied in 3.5 Gm. (⅛ oz.) tubes. Each Gm. contains 0.5 mg. of dexamethasone 21-phosphate as the disodium salt and 5 mg. of neomycin sulfate (equivalent to 3.5 mg. neomycin base). Also contains white petrolatum and liquid petrolatum. The solution is supplied in 2.5 cc. and 5 cc. sterile bottles with dropper assembly. Each cc. contains 1 mg. dexamethasone 21-phosphate as the disodium salt, 5 mg. neomycin sulfate (equivalent to 3.5 mg. neomycin base). Inactive ingredients: creatinine, sodium citrate, sodium borate, polysorbate 80, sodium hydroxide (to adjust pH) and water for injection. 0.32% sodium bisulfite and 0.02% benzalkonium chloride added as preservatives.

NeoDECADRON is a trademark of Merck & Co., Inc.

MSD MERCK SHARP & DOHME Division of Merck & Co., Inc., West Point, Pa.

Beaver MINIATURE BLADE KNIFE

FOR FINE SURGERY

Four Miniature blades that permit finer techniques in many types of fine surgery such as ophthalmic, oral, plastic and reconstructive, cardiac, neuro, etc. The pencil-shaped handle permits closer, finer control of the cutting action and the blades are keenly edged, sturdy and dependably sharp.

Blades $3.00 per dozen
(Packed 6 of one number per box)

Handles (square, knurled or hexagonal) $2.00

SURGICAL KNIVES BY Rudolph Beaver

WALTHAM 54, MASSACHUSETTS

OTIC

Ear Solution, 1 bottle Powder, 50 mg.; 1 bottle Diluent (benzocaine 5% solution in propylene glycol), 10 cc.

ACHROMYCIN®

Tetracycline Lederle

a standard in external antibiotic therapy

LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, N. Y.

FOR THE RIGHT ANSWER WHEN YOU NEED IT

☐ **Karl W. Ascher — THE AQUEOUS VEINS: Biomicroscopic Study of the Aqueous Humor Elimination.** Pub. Sept. '61, 294 pp., 139 il. (3 full color plates) (Amer. Lec. Ophthalmology), $12.00

☐ **Walter H. Fink—SURGERY OF THE VERTICAL MUSCLES OF THE EYE (2nd Ed.). Pub. Feb. '62**

☐ **Gilbert H. Fletcher & William S. MacComb — RADIATION THERAPY IN THE MANAGEMENT OF CANCERS OF THE ORAL CAVITY AND OROPHARYNX.** Pub. Nov. '61, about 392 pp., about 346 il. (Amer. Lec. Radiation Therapy)

☐ **E. H. Miles Foxen—LECTURE NOTES ON DISEASES OF THE EAR, NOSE AND THROAT.** Pub. Dec. '61, about 180 pp., about 50 il.

☐ **W. Morton Grant—TOXICOLOGY OF THE EYE.** Pub. Feb. '62

☐ **Thomas G. Hull & Tom Jones—SCIENTIFIC EXHIBITS.** Pub. Sept. '61, 144 pp., 96 il., $6.50

☐ **Charles E. Iliff & Helen Ossofsky — OCULAR AND ORBITAL TUMORS IN INFANTS AND CHILDREN.** Pub. Dec. '61 (Pediatric Surgical Monographs)

☐ **Jerry Hart Jacobson — CLINICAL ELECTRORETINOGRAPHY.** Pub. Sept. '61, 184 pp., 285 il., $8.50

☐ **M. Lederman — CANCER OF THE NASOPHARYNX: Its Natural History and Treatment.** Pub. May '61, 128 pp., 109 il. (Amer. Lec. Radiation Therapy), $6.75

☐ **Sidney Lerman—GLAUCOMA: Chemistry, Mechanisms and Therapy.** Pub. April '61, 128 pp., 25 il., 5 tables (Amer. Lec. Living Chemistry), $6.50

☐ **Richard H. Meade — A HISTORY OF THORACIC SURGERY.** Pub. Aug. '61, 960 pp., 117 il., $27.50

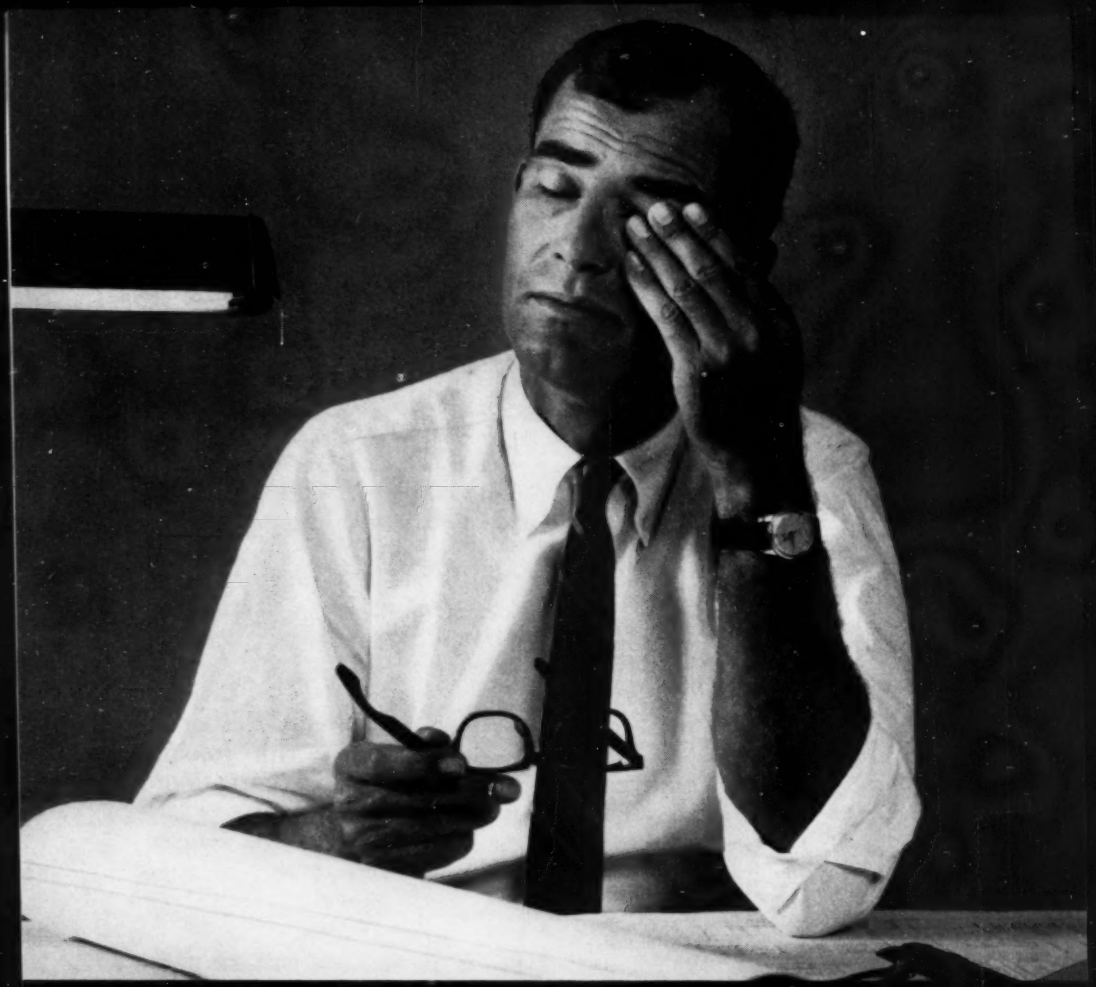
☐ **Donald F. Proctor — THE TONSILS AND ADENOIDS IN CHILDHOOD.** Pub. June '60, 82 pp. (8½x11), 46 il. (1 full color plate), (Pediatric Surgical Monograph Series), $7.50

☐ **Donald F. Proctor — THE SINUSES AND EARS.** Pub. Feb. '62 (Pediatric Surgical Monographs)

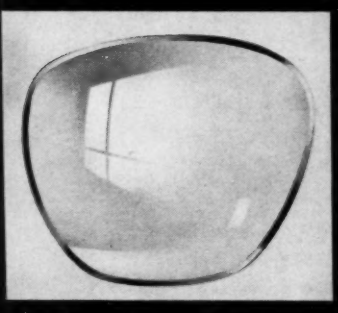
☐ **Grant L. Rasmussen & William F. Windle — NEURAL MECHANISMS OF THE AUDITORY AND VESTIBULAR SYSTEMS.** Pub. March '61, 436 pp., 433 il., $15.75

☐ **P. J. Waardenburg et al.—GENETICS AND OPHTHALMOLOGY. Volume I.** Pub. Sept. '61, 1050 pp. (7x10), 1383 il. (87 in full color), 36 tables, $54.50

CHARLES C THOMAS • PUBLISHER 301-327 East Lawrence Avenue **SPRINGFIELD • ILLINOIS**



Why more and more patients now need CRUXITE®



® T.M. Registered by American Optical Company

The reason is simple. Today, people are exposed to an ever i
creasing amount of ultraviolet radiations—from fluorescent ligh
ing, TV picture tubes and, of course, the sun. This has broug
about a rapid rise in the number of photophobic patients and
greater need for AO Cruxite lenses. These time-tested lenses a
sorb over 95% of all ultraviolet radiations at 356 mmu . . . give yo
patients excellent protection . . . are available in almost every kir
of AO lens design. What's more, CRUXITE lenses are special
tinted to blend with skin tones . . . and the color never fades. S
when light-sensitivity is a factor, prescribe AO CRUXITE for th
most in comfort, the most in protection.

American Optical
COMPANY

Since 1833 . . . Better Vision for Better Living

In a series[1] of 87 cases of retinal hemorrhages, vitreous hemorrhages or vitreous floaters, the use of IODO-NIACIN* Tablets was followed by both subjective and objective improvement.

Ocular hemorrhages, as photographed ophthalmoscopically, were absorbed rapidly. Large vitreous floaters diminished in size and often disappeared entirely. The controls, treated with a placebo, showed no comparable benefit.

- **RETINAL HEMORRHAGES**
- **VITREOUS HEMORRHAGES**
- **VITREOUS FLOATERS**

IODO-NIACIN has been found to be effective in cerebral and generalized arteriosclerosis[3]. There are no symptoms of iodism or other ill effect even when the medication is continued in full dosage for a year or longer.

IODO-NIACIN Tablets contain potassium iodide 135 mg. and niacinamide hydroiodide 25 mg. The recommended dosage for ocular conditions is 1 tablet t.i.d. No iodism occurs with prolonged use of a dosage of 8 tablets daily.

IODO-NIACIN Ampuls, for intramuscular or slow intravenous injection, have been shown to provide the same therapeutic effects[2] as the tablets. Indicated for rapid and intensive action.

IODO-NIACIN*

*U.S. Patent Pending.

1. Abrahamson, I. A., Jr. & Abrahamson, I. A., Sr., *Am. J. Ophth.* (Insert vol.:page), 1956.
2. Feinblatt, T. M., Feinblatt, H. M. & Ferguson, E. A., *Am. J. Digest. Dis.* 22:5, 1955.
3. Feinblatt, T. M., Feinblatt, H. M. & Ferguson, E. A., *Med. Times*, 84:741, 1956.

Cole
CHEMICAL COMPANY
3721-27 Laclede Ave.
St. Louis 8, Mo.

COLE CHEMICAL COMPANY
3721-27 Laclede Ave., St. Louis 8, Mo.

AA-12

Gentlemen: Please send me professional literature covering IODO-NIACIN Tablets and Ampuls, also samples of the tablets.

Name ..... M.D.

Street .....

City ..... Zone..... State.....

JUST AS A REMINDER...

6 *products to remember!*

AURALGAN®
EAR DROPS

IN ACUTE OTITIS MEDIA
SAFE AURALGESIC
AND DECONGESTANT

OTOS-MOSAN®
BACTERICIDAL — FUNGICIDAL

BROAD-SPECTRUM
THERAPY IN
SUPPURATIVE OTITIS

Now!

BIO-TOSMOSAN® HC
(WITH HYDROCORTISONE ALC.)

IN ACUTE EXACERBATION
EXTERNAL OTITIS
ALLERGIC EARS

RHINALGAN®
NASAL SPRAY

SAFE!
"NOT JUST ANOTHER
DECONGESTANT"

Now!

RHINALGAN® HC
(WITH HYDROCORTISONE ALC.)

ANTI-INFLAMMATORY
ANTI-ALLERGIC

LARYLGAN®
THROAT SPRAY • GARGLE • SWAB

FOR INFECTIOUS
AND NON-INFECTIOUS
THROAT INVOLVEMENTS

DOHO CHEMICAL CORP., 100 VARICK ST., NEW YORK 13, N.Y.

now!

Investigate the new

RELIANCE

No. 660 MOTOR HYDRAULIC EENT CHAIR

Never before such a trim, smart, uncluttered chair with that professional appearance!

So easy to operate, so foolproof, so comfortable, that it is certain to please both doctor and patient.

Factory-sealed hydraulic mechanism . . . single pedal raises and lowers from either side of chair.

So functional, so characteristically RELIANCE-engineered, such inbuilt quality! And all at a surprisingly moderate price.

See your Reliance dealer or write for brochure.

F. & F. KOENIGKRAMER CO., Dept. T-12, 96 Caldwell Drive, Cincinnati 16, Ohio
Please send me No. 660 Brochure

NAME_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

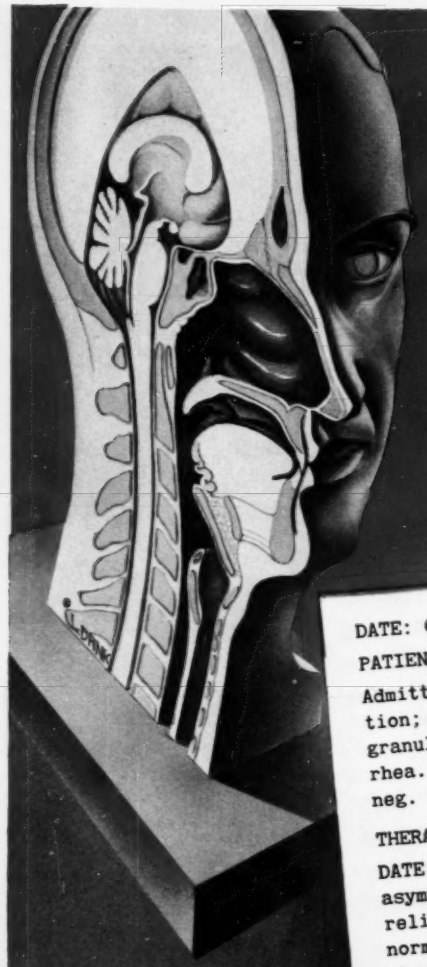
DEALER_____

F.&F.

Through the Years — RELIANCE quality tells

KOENIGKRAMER CO.

Dept. T-12, 96 Caldwell Drive, Cincinnati 16, Ohio



To effectively cope with the problem of subacute, chronic or recurrent sore throats

THERAPY: Bistrimate

DATE: 6/10/60

PATIENT: W.W. SEX: M AGE: 29 WEIGHT 168

Admitted with severe sore throat, 4-5 days duration; mild dysphagia, 2 days duration. Pharyngeal granulations fiery red; temp. 99.8°; mild rhinorrhea. Subacute granular pharyngitis. Cultures neg. for pathogens.

THERAPY: BISTRIMATE TABS 2 t.i.d.

DATE: 6/17/60 -- Patient afebrile and asymptomatic. Sore throat and dysphagia relieved in 3-4 days. Pharynx appears normal. No side reactions reported. Discharged.

Actual case history from the files of SMP Medical Department

bismuth sodium triglycollamate*

BISTRIMATE

SAFE • EFFECTIVE • ECONOMICAL

Preliminary tissue studies indicate that Bistrimate has an antiviral effect on Adenovirus type 3 and Adenovirus type 7 [1]

SUPPLIED: Bottles of 100 and 1000 tablets.

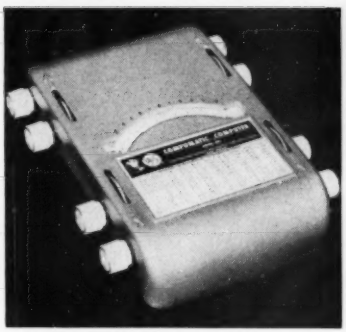
Consult literature and dosage information, available on request before prescribing.

SMP **SMITH, MILLER & PATCH, INC.**
FINE PHARMACEUTICALS 902 BROADWAY, N. Y. 10

1. Reports on file, SMP Medical Department.

*Reg. U. S. Pat. Off.

Another major advancement
for the ***CONTACT LENS INDUSTRY!***



COMPUMATIC* COMPUTER

Computes with amazing speed and accuracy
Corneal Profile • Lens Size • Lens Curve

The Compumatic Computer pre-determines and standardizes the many variable factors involved in contact lens application.

It graphically charts the corneal curves, centrally and peripherally, as measured by the Ophthalmometer, the Keratometer, or by the PEK Camera (Photo-Electronic Keratoscope). It then profiles the required lens to create an equal lacrimal layer under the total area of the lens and determines the size and base curve of the lens.

The Compumatic Computer provides lens position, lacrimal layer thickness, base curve and size of the lens in sagittal section views to pre-determine the lens best suited to achieve better centering, minimal corneal insult and faster patient adaptation and satisfaction.

It reduces the human error factor and introduces new perfection and automation in contact lens design. (No. 384-05) **$227.50.**

The Plastic Contact Lens Company
Dept. M., P. O. Box 6386
Chicago, Illinois.

Please send me a W/J Compumatic* Computer @ **$227.50.**

☐ Check in full enclosed.

☐ $100.00 advance payment enclosed.

Name_____

Address_____

City_____

State_____

the plastic contact lens company

5 South Wabash Avenue
Chicago 3, Illinois

*TRADEMARK
Patent Pending

There's a W/J office near you! • Atlanta Wesley-Jessen, Inc. • Boston Wesley-Jessen, Inc. • Dallas Wesley-Jessen, Inc. • Denver Wesley-Jessen, Inc. • Detroit Wesley-Jessen, Inc. • Wesley-Jessen Contact Lens Company of Los Angeles • Miami Wesley-Jessen, Inc. • Mid-America Contact, Inc. (Tulsa, Okla.) • Milwaukee Wesley-Jessen, Inc. • Minneapolis Wesley-Jessen, Inc. • New Orleans Wesley-Jessen, Inc. • Wesley-Jessen Contact Lens Company of New York • Philadelphia Wesley-Jessen, Inc. • Pittsburgh Wesley-Jessen, Inc. • Portland (Ore.) Wesley-Jessen, Inc. • St. Louis Wesley-Jessen, Inc. • Wesley-Jessen Contact Lens Company of San Diego • Wesley-Jessen Contact Lens Company of San Francisco • Wesley-Jessen Contact Lens Company of Seattle.

A COMPLETE TREATMENT ROOM IN A SMALL AREA

The wall mounted treatment cabinet, treatment chair, cuspidor with suction shown above are contained in a 5 x 6 ft. space. Note the comparative absence of visible plumbing and electrical wires. Although this equipment may be used conveniently in a small area it need not be confined to this space. The floor type cabinet can be substituted for the wall mounted type. A number of room arrangements will be furnished on request.

WALL MOUNTED TREATMENT UNIT: Covered with stainless steel. Contains: air regulator with gauge, tubing, cut-off and air filter; nasopharyngoscope rheostat; push button; cautery transformer and rheostat; otoscope transformer and rheostat; transilluminator complete with rheostat, cord, handle lamps, antrum and frontal tips; metal covered drawers are on nylon runners; a pull-out writing shelf; bakelite covered work table 21" x 12"; space for five spray bottles, twelve solution bottles, shelf for cotton jars; pocket for history and prescription cards; spray bottle heater. Presents an attractive appearance and will not tarnish and is easy to keep clean. Price complete without glassware $195.00. Without air but with electrical equipment $165.00. With air equipment only $150.00. Without either air or electrical equipment $115.00. Complete set glassware $48.00. Otoscope head, coiled cord and handle $29.50 complete.

FLOOR TYPE TREATMENT UNIT: Essentially the same as our wall mounted unit but designed for the physician who desires a movable floor type cabinet (glides are furnished if roll-around is not desired). May be obtained with built-in pressure-suction. No. 501 DeVilbiss pumps are used.

CHAIR: Can be placed in horizontal position, will not tip in this position; raised and lowered by large hand wheel 18" to 24"; paper covered headrest removable; chair locks with foot-pedal; bakelite arm-rests removable. Back locks rigidly in any position. Chair as shown but less light, in colors brown, green or black $175.00 (other colors available at $5.00 extra). By adding a footrest and turning handle chair can be used for turning tests. This additional equipment is easily and quickly removable. Add $30.00. (Specify turning chair.)

COMBINED SUCTION AND CUSPIDOR: Designed to eliminate the cost of installing a separate suction. The apparatus is 12" wide and projects 13¼" from the wall. The flushing rim and the suction is furnished with a vacuum breaker and should meet all plumbing requirements. Stop and trap not furnished. Available in ivory, green and white. Price $103.00.

INSTRUMENT TABLE: Table top size 11" x 17", heavy base of porcelain enamel on casters, standard is chromium plated, table stainless steel. Single deck $34.00, double deck (as shown) $40.00.

EXAMINING LIGHTS: Chair mounted light, a flexible goose-neck lamp which can be moved up or down, this lamp may also be mounted on the wall as shown. Chair mounted Model C $22.00. Wall mounted Model W $25.00. A telescopic light attached to the ceiling or may be attached to the baseboard in back of chair. Available in 4, 5, 6 and 7 ft. (extended). 4 ft. $17.50 (add one dollar per additional ft.).

LIGHT SHIELD: Takes an ordinary 100 watt lamp. Will not burst, spot can easily be rotated. $5.00.

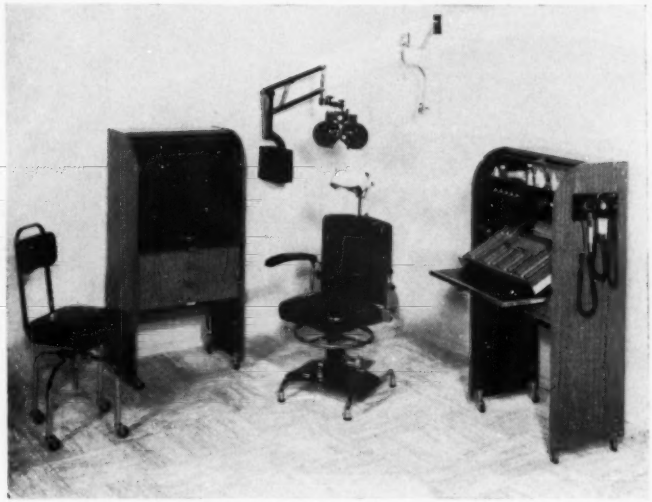
PHYSICIAN'S STOOL: A soft upholstered stool with easy running ball bearing stem casters (shown). $20.00. Stool with back, $26.00. Colors as listed for treatment chairs.

All Prices are F.O.B. Los Angeles, Calif.
Slightly Higher Outside of U. S.

Surgical — Mechanical — Research, Inc.
ESTABLISHED 30 YEARS

1901-1905 Beverly Blvd. SMR Los Angeles 57, Calif.

A TREATMENT ROOM FOR THE OPHTHALMOLOGIST



SMR

A NEW Cabinet for the Ophthalmologist for **Treatment** and **Refraction**

S M R MODEL EF-22 FORMICA COVERED EYE CABINET

FEATURES

1. Attractive, space saving, movable, convenient; all controls within easy reach.
2. Pull down plastic covered curtain to protect the lenses and medication.
3. Lens tray illuminated by concealed lumiline lamp.
4. Lens tray holder. When lens tray is pulled forward it drops to a convenient angle and when pushed backward it automatically returns to its horizontal position and is out of the way.
5. Three cradles to hold ophthalmoscope and retinoscope.
   Mercury switch on each cradle automatically turns instruments on and off. Voltages 2.5, 6-8 and 12 are available.
6. Pull out writing shelf and a large drawer on heavy duty roller slides. Drawers inside dimensions 21¾" long, 13" wide and 3" deep.
7. Medication and solution warmer.
8. Cautery and transilluminator outlet. 2.5 volts, 40 watts.
9. Buzzer button.
10. Single, combination master switch and rheostat. Turning on your rheostat automatically turns on the current at the lowest voltage. You are therefore less likely to burn out your lamps.
11. In addition to the above, there are three (3) auxiliary switches on the panel. Each switch controls a convenience outlet which is mounted at the base of the cabinet. Into these convenience outlets you can plug in your muscle light, chart illumination or any other piece of equipment that takes 110 volt current. In some cases it has been found that the saving in cost in rewiring a room will equal the cost of the entire cabinet.

The outer surfaces of the cabinet are finished in royal walnut formica and inner surfaces in black formica.

The price does not include instruments or lenses.

Single Drawer
Model — $275.00

Triple Drawer
Model — $315.00

CHAIR: Upholstered, reclining, adjustable headrest, can be raised or lowered by large ball-bearing wheel; can be locked in any position; elevation 18 to 24". $175.00 in brown, green or black. Other colors available at $5.00 extra.

STOOL: Ball-bearing casters, upholstered in standard colors of green, brown, black—w/o backrest $20.00, w/backrest $26.00. Other colors available—$2.00 add'l.

LIGHT: Self-adjusting friction clutch controls vertical movement; gooseneck controls lateral and anterior-posterior movement, chrome finish. Chair mounted, Mdl. "C" $22.00, Wall mounted Mdl. "W" $25.00.

F.O.B. Factory

(Refractor and Bracket not available at present)

Catalogue sent on request

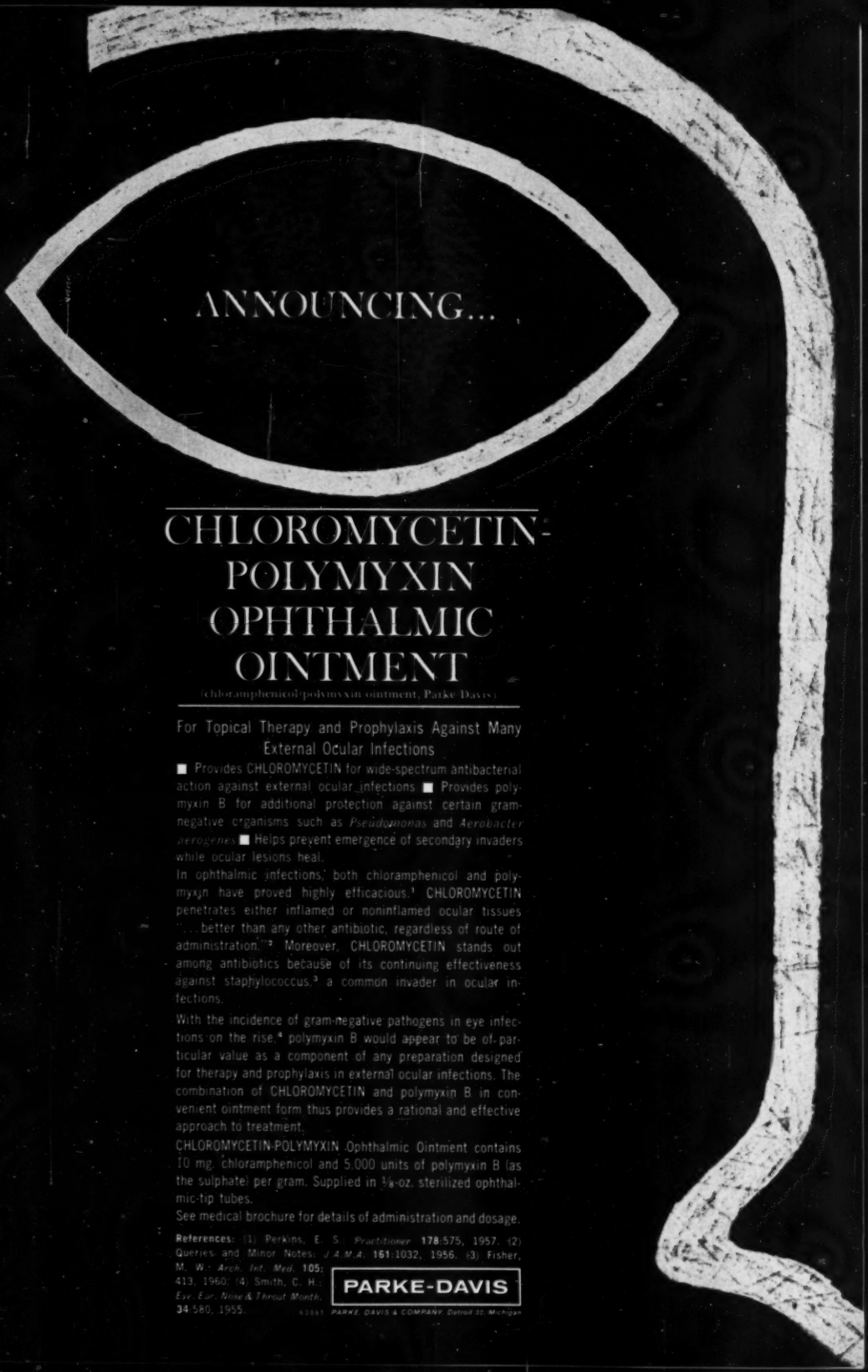
SMR

SURGICAL MECHANICAL RESEARCH, INC.

1901-5 BEVERLY BLVD. • DUnkirk 3-6571 • LOS ANGELES 57, CALIF.

SMR

Established 30 Years


ANNOUNCING...
CHLOROMYCETIN-POLYMYXIN OPHTHALMIC OINTMENT
(chloramphenicol-polymyxin ointment, Parke-Davis)
For Topical Therapy and Prophylaxis Against Many External Ocular Infections
■ Provides CHLOROMYCETIN for wide-spectrum antibacterial action against external ocular infections ■ Provides polymyxin B for additional protection against certain gram-negative organisms such as *Pseudomonas* and *Aerobacter aerogenes* ■ Helps prevent emergence of secondary invaders while ocular lesions heal.
In ophthalmic infections, both chloramphenicol and polymyxin have proved highly efficacious.[1] CHLOROMYCETIN penetrates either inflamed or noninflamed ocular tissues "... better than any other antibiotic, regardless of route of administration."[2] Moreover, CHLOROMYCETIN stands out among antibiotics because of its continuing effectiveness against staphylococcus,[3] a common invader in ocular infections.
With the incidence of gram-negative pathogens in eye infections on the rise,[4] polymyxin B would appear to be of particular value as a component of any preparation designed for therapy and prophylaxis in external ocular infections. The combination of CHLOROMYCETIN and polymyxin B in convenient ointment form thus provides a rational and effective approach to treatment.
CHLOROMYCETIN-POLYMYXIN Ophthalmic Ointment contains 10 mg. chloramphenicol and 5,000 units of polymyxin B (as the sulphate) per gram. Supplied in 1/8-oz. sterilized ophthalmic-tip tubes.
See medical brochure for details of administration and dosage.
References: (1) Perkins, E. S.: Practitioner 178:575, 1957. (2) Queries and Minor Notes: J.A.M.A. 161:1032, 1956. (3) Fisher, M. W.: Arch. Int. Med. 105:413, 1960. (4) Smith, C. H.: Eye, Ear, Nose & Throat Month. 34:580, 1955.
PARKE-DAVIS
©1961 PARKE, DAVIS & COMPANY, Detroit 32, Michigan

SUPERB DESIGN
QUALITY WORKMANSHIP
DEPENDABLE PERFORMANCE

in the ***NEW***

MA8 Hearing Evaluator

by **MAICO**
ELECTRONICS

A hearing research instrument embodying all the important features required for accurate measurement and study of hearing impairment. Whether your audiometric needs require a basic instrument or a comprehensive testing and evaluation laboratory, the Maico MA-8 audiometer provides the ideal answer. Make sure you see this remarkable instrument before specifying your hearing test equipment.

- Dual channel operation
- Two independent channels with seven separate input selections in each
- White noise and sawtooth masking
- Hearing level controls continuously adjustable from -10 to 100 db
- Talk-over communication circuit without changing test set-up
- Eleven different output combinations
- Tilt top desk with built in accessories and two room evaluation components available

For complete details and specifications ask your local MAICO dealer or write

MAICO ELECTRONICS, INC. Minneapolis 1, Minn.

Makers of Quality Hearing Aids, Audiometers and Auditory Training Equipment

"HERE'S THE REASON, MRS. JONES"

Only the Panoptik bifocal combines these four important benefits: 1) essentially *jumpless passage* by virtue of close optical centers, 2) *minimum encroachment* of segment on distance portion, 3) *ease of use* because curved segment reduces reflections, fits natural cone of vision, 4) *full clear wide-angle vision* assured by Orthogon correction and B&L ophthalmic glass. And the distinctive segment shape identifies Panoptik—and the quality it stands for.

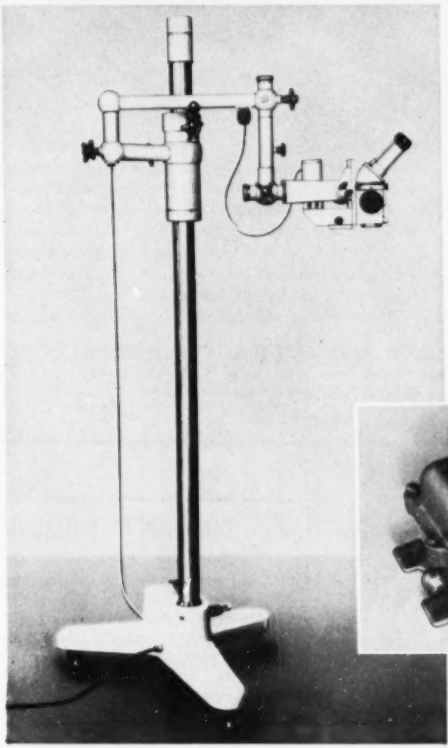
Upgrade to Orthogon...

the uncompromising standard

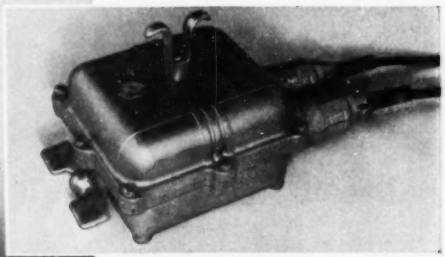
BAUSCH & LOMB

storz

Surgical Instruments



The separate EXPLOSION PROOF UNIT is plugged into wall outlet and connected to light bulb plug. Standard non-explosion proof base of microscope is by-passed and undisturbed, thereby making it available for photographic procedures or as a stand-by power source.



No Modification Required

The STORZ-ZEISS OPERATING MICROSCOPE

with **Footswitch** *and* **Transformer** *in Separate*

Explosion-Proof Housing

NO MODIFICATION REQUIRED

STORZ INSTRUMENT COMPANY • • • 4570 Audubon Ave., St. Louis 10, Mo.

New York Showroom: 157 East 64th St.—*at Lexington Ave.*

Concentra®
Corneal Lenses

Lacrilens®
Molded Lenses

Solutionless
Contact Lenses

Trial Sets

Prism
Contact Lenses

Cylindrical
Contact Lenses

Microscopy Lenses

Colored
Contact Lenses

Tinted
Contact Lenses

Wetting Solutions

Molding Shells

Molding Equipment

Adjusting Equipment
and Supplies

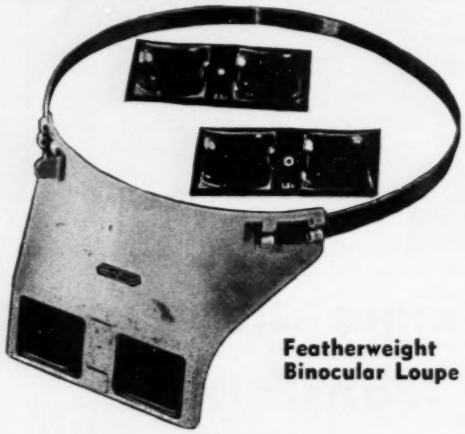
Textbooks

OBRIG

in contact lenses it's Obrig for everything in sight

A pioneer in plastic contact lens development and manufacture, Obrig Laboratories maintains leadership in the contact lens field through continuous, imaginative research. In experience, facilities, and range of products and services, Obrig will not be surpassed. The list of Obrig products is a growing one; to its customers Obrig offers consultation and assistance in problem fitting cases. In contact lenses—
it's Obrig for everything in sight.

OBRIG Laboratories Inc., 75 East 55th Street, New York 22, N.Y. • PLaza 8-0960
Sarasota, Florida; Boston, Massachusetts; Phoenix, Arizona. Foreign Branches: Montreal, Canada; Johannesburg, South Africa; San Jose, Costa Rica; Caracas, Venezuela; Mexico, D.F., Mexico



Featherweight Binocular Loupe

Permits interchange of higher or lower power lens mountings. Designed to give complete comfort when wearing glasses. Can be sterilized without harm. Now available with choice of 1½×, 2× or 2½×. $15.00 P.P. Additional powers **$6** pr. ppd.

BARNETT Optical Laboratories
3104 North Cicero Ave., CHICAGO 41, ILL.

URGENT REQUEST

The Uveitis Laboratory, University of California School of Medicine, San Francisco, is vitally interested in obtaining freshly enucleated eyes from patients with **all types of uveitis** and other endogenous inflammations. Attempts are being made to isolate etiologic agents from these eyes.

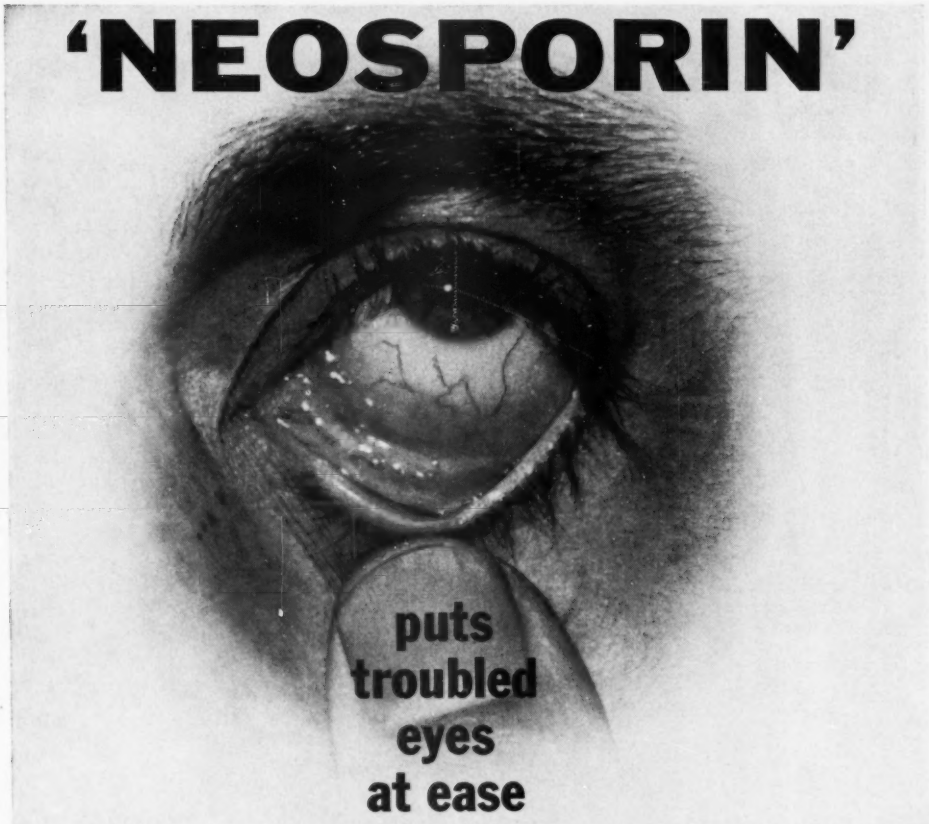
The eyes should be placed in a sterile bottle, packaged with the history and findings, and shipped as quickly as possible. Please send specimens special delivery, **collect,** and mark the package "Fresh Tissue Specimen—Rush." Do **not** freeze or use preservatives of any kind.

A report of isolations of organisms and pathologic findings, including a slide, will be sent to the contributor. Credit will be given in any resulting publications, if desired.

Telegraph collect if specimen is being sent. Send eyes to . . .

Samuel J. Kimura, M.D.,
Michael J. Hogan, M.D., or
Phillips Thygeson, M.D.
University of California
School of Medicine, San Francisco 22

'NEOSPORIN'



controls most eye infections promptly...rarely sensitizes

Infected eyes can be put at ease rapidly and effectively with nonirritating, rarely sensitizing, 'Neosporin' Ophthalmic products. Both the solution and the ointment are bactericidal to virtually all gram-positive and gram-negative organisms known to be topical invaders, including Pseudomonas.

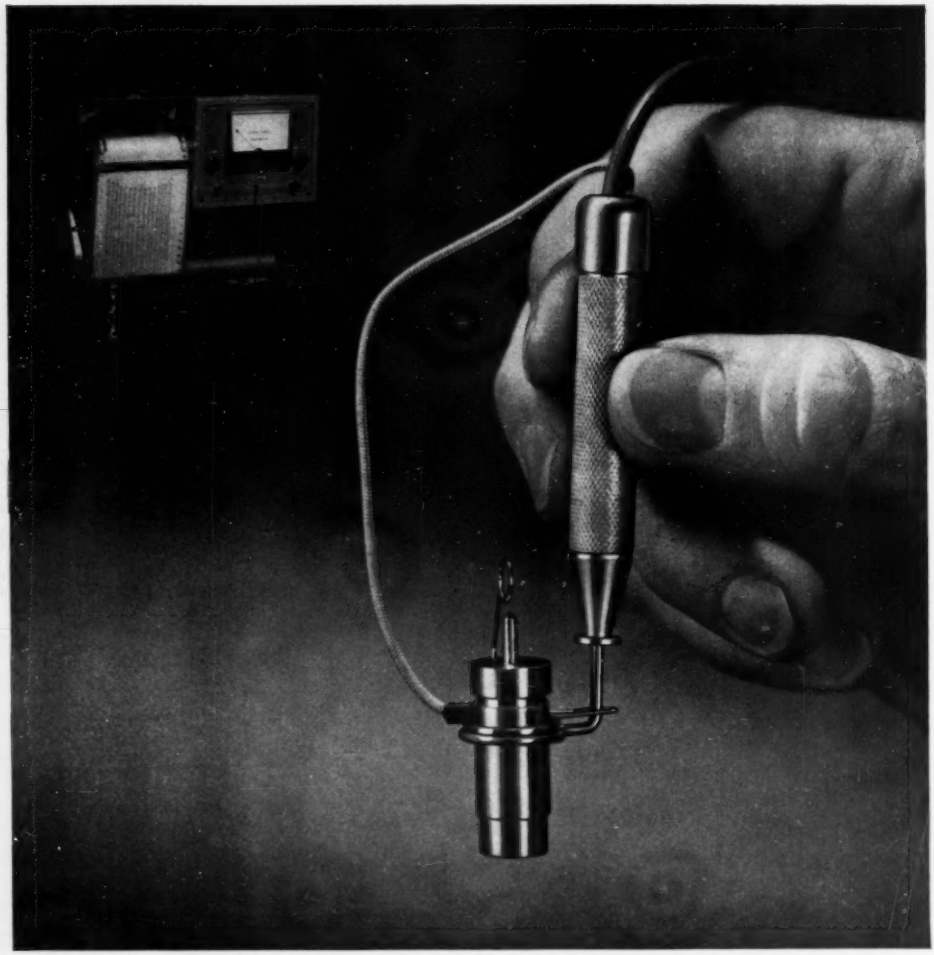
'NEOSPORIN'® brand
ANTIBIOTIC OPHTHALMIC SOLUTION

Each cc. provides:
'Aerosporin'® brand Polymyxin B Sulfate ..... 5,000 Units
Neomycin Sulfate ..... 2.5 mg.
(Equivalent to 1.75 mg. Neomycin Base)
Gramicidin ..... 0.025 mg.
Preservative—Thimerosal 0.001%
Bottles of 10 cc. with sterile dropper.

'NEOSPORIN'® brand
ANTIBIOTIC OPHTHALMIC OINTMENT

Each gram provides:
'Aerosporin'® brand Polymyxin B Sulfate ..... 5,000 Units
Zinc Bacitracin ..... 400 Units
Neomycin Sulfate ..... 5 mg.
(Equivalent to 3.5 mg. Neomycin Base)
Tubes of ⅛ oz. with ophthalmic tip.
Complete literature available upon request.

BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, New York



to make the most of your talents and techniques . . .

Electronic Tonographer-Ophthalmodynamometer

Now! Electronic *Tonometer*, Electronic *Ophthalmodynamometer*, and Synchronized Direct-Writing *Recorder*, in one compact unit. The only such electronic equipment *certified* to comply with specifications of the AAOO. Developed through V. Mueller research. Details on request.

VMUELLER & CO.

Fine Surgical Instruments and Hospital Equipment Since 1895

330 S. Honore Street, Chicago 12, Illinois

Anaheim, Cal. • Dallas • Houston • Miami, Fla. • Rochester, Minn.

MORE EFFECT FROM LOWER CONCENTRATIONS

in acute and chronic infections of the eye

The methylcellulose vehicle, ISOPTO®, holds drugs in contact with the eye *6 to 8 times longer* than ordinary aqueous vehicles. Greater effectiveness may thus be obtained with lower concentrations of drugs. This increases patient comfort and *reduces prescription costs.*

ALCON LABORATORIES, INC. Fort Worth, Texas

Alcon

ISOPTO CETAPRED

Isopto Cetapred combines 10% Sodium Sulfacetamide with 0.25% Prednisolone suspension, in a 0.5% methylcellulose base (ISOPTO). Tests demonstrate excellent corneal penetration by the superfine particles of prednisolone. The increased effectiveness provided by ISOPTO's longer contact time allows lower concentrations of steroid and sulfa . . . reduces patient cost.

ISOPTO CETAMIDE

15% Sulfacetamide Sodium in a 0.5% methylcellulose base—a formulation designed to furnish maximum antibacterial action with greater patient comfort.

JARDON

Plastics Research Corporation

TEMPORARY PLASTIC CATARACT GLASSES, as designed by A. D. Ruedemann, Jr., M.D. Available in + 10.50 and + 13.50 plain spheres or with a + 3.00 add. These glasses are extremely light, have a hard finish and are available either clear or tinted. Found to be satisfactory in all post-operative cataract cases.

The prices of these cataract glasses are as follows:

Plain . . . . . **$6.00** **Bifocal** **$7.00**

IMPLANTS

Made from a silicone rubber, contains no conventional rubber. It is an elastomeric compound comprising a silicone polymer and a filler which is chemically bound to the polymer. The medical grades contain no plasticizers or chemicals that can be leached out and cause physiological difficulties. This implant comes in sizes ranging from 11 mm to 20 mm spheres, can be autoclaved.

Implant . . . . . **$2.50** **With Conformer** **$3.50**

CONTACT LENSES

For the medical profession. The lenses are made from duPont plastic materials and are precision ground to the prescription by our staff of the finest European trained technicians, assuring quality unsurpassed. Our lenses are available in a variety of colors made in thru-and-thru plastic for uniform and lasting color quality. Price lists are available upon request.

ARTIFICIAL EYES

Complete custom services rendered in our laboratories.

Additional information can be obtained by writing to:

905 Kales Building

Detroit 26, Michigan

'ACTIFED'®

Decongestant / Antihistamine

THE POTENTIATED DECONGESTANT

provides symptomatic relief of nasal congestion and rhinorrhea of allergic or infectious origin Many patients whose symptoms are inadequately controlled by decongestants or antihistamines alone respond promptly and favorably to 'ACTIFED'.

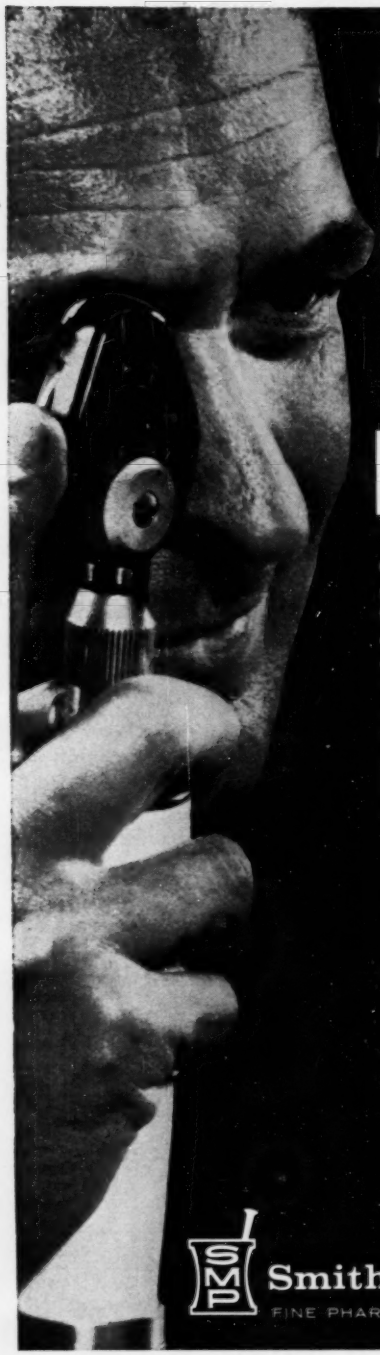
'ACTIFED' contains:	in each Tablet	in each tsp. Syrup
'Actidil'® brand Triprolidine Hydrochloride	2.5 mg.	1.25 mg.
'Sudafed'® brand Pseudoephedrine Hydrochloride	60 mg.	30 mg.

safe and effective for patients of all ages suffering from upper respiratory tract congestion

DOSAGE

	TABLETS	SYRUP (5 cc. tsp.)	
Adults and older children	1	2	three times daily
Children 4 months to 6 years of age	½	1	
Infants through 3 months	–	½	

BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, New York



gratifying response in:

- **SENILE MACULAR DEGENERATION**
- **DIABETIC RETINOPATHIES**
- **ARTERIOSCLEROTIC RETINOPATHIES**

LIPOTRIAD®

Smith

Clinical data[1-3] have repeatedly justified the routine use of LIPOTRIAD as accepted therapy for certain vascular retinopathies. Systemic and subjective improvements are sometimes dramatic . . . always gratifying. "Offers hope for many cases in which progressive loss of vision is a problem of increasingly grave concern to the patient."[4]

LIPOTRIAD effects absorption of the grayish exudates and improves the peripheral vision. In other patients the macular edema subsides with improvement of the central vision.[5]

Keeney,[6] in his studies of 130 eyes, reports that LIPOTRIAD was of sufficient value in the treatment of "primary" senile degeneration of the macula to warrant its continued use for this group of patients.

LIPOTRIAD — a potent combination of choline, inositol, methionine, B_{12} and oxytropic factors of the B-complex in liquid or capsules.

DOSAGE: One teaspoonful or three capsules t.i.d.

1. Hilgartner, H. L.: Texas J. Med. 51:733 (Nov.) 1955. 2. Stattenson, E. H.: Personal communication. 3. Sweets, E. J., and Van Bergen, T. M.: Personal communication. 4. Alexander, J. E.: Personal communication. 5. Hilgartner, H. L.: Eye, Ear, Nose & Throat Month. 38:842 (Oct.) 1959. 6. Keeney, A. H. and Jain, M.: Tr. Am. Ophth. Soc. 56:247, 1958.

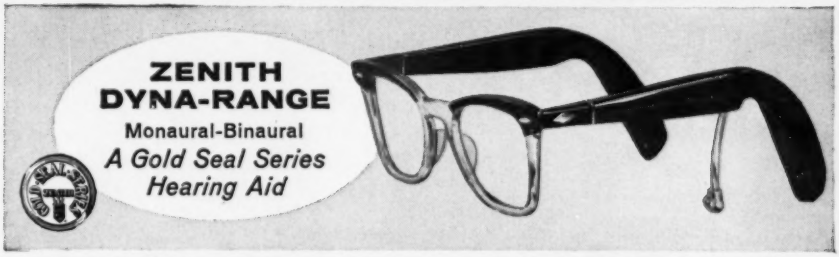
LITERATURE AND SAMPLES ON REQUEST

Smith, Miller & Patch, Inc.

FINE PHARMACEUTICALS • 902 BROADWAY, N. Y. 10

AT LAST...AN EYEGLASS HEARING AID* FOR SEVERE HEARING LOSSES...

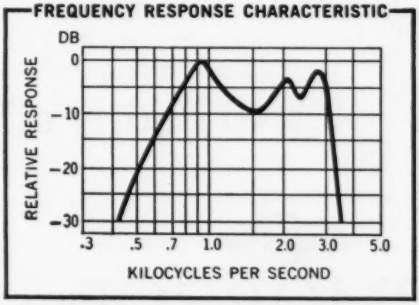
and of course it's a ZENITH



Conventional hearing aid performance in a convenient eyeglass hearing aid!

You probably have patients who prefer an eyeglass hearing aid to the conventional aid, but have been unable to get satisfactory performance from those available. Or they may require two instruments for the benefits of binaural hearing, which is more practical with an eyeglass hearing aid. For this group, and for those who now wear eyeglass hearing aids of insufficient power, Zenith has developed the new Dyna-Range...an eyeglass model hearing aid that has the power and frequency response of a conventional model. The Zenith Dyna-Range is possible because of a new, improved four-transistor power circuit, specially designed earphone, and "float-mounted" Permaphone.®

Other features of the new Zenith Dyna-Range Hearing Aid include adjustable temple bars and connectors . . . combination volume control and on-off switch, and choice of black or mink colors.



Frequency response curve made with output into 2 cc. coupler through 1½ in. of #11 tubing, with volume control set at 40 db gain. Free field sound pressure input level of 60 db.

Maximum Acoustic Gain . . . . . 61 db ± 3 db
Maximum Acoustic Power Output . . . . . 128 db ± 3 db
Battery . . . . . ZM675 mercury, 1.3 volts
Battery Drain . . . . . 4.5 ma. (average)
Weight with battery . . . . . ¾ oz., each active temple bar

Note wide response of Dyna-Range, with better reproduction of low tones.

*User purchases lenses and frame, if needed, from his own eyeglass specialist.

When you consider a Zenith Hearing Aid, you can be assured your patient will receive every benefit possible . . . the understanding, skilled assistance of Zenith dealers. . . instruments of finest quality and performance—backed by the world leader in TV and radio . . . servicing facilities unmatched in the industry.

ZENITH®
"LIVING SOUND"®
HEARING AIDS

WRITE FOR INFORMATION TODAY

Hearing Aid Division, Zenith Radio Corp., Dept. 41Z
6501 W. Grand Avenue, Chicago 35, Illinois

Please send me the complete story about the newest Zenith "Living Sound"® Hearing Aids.

NAME _____

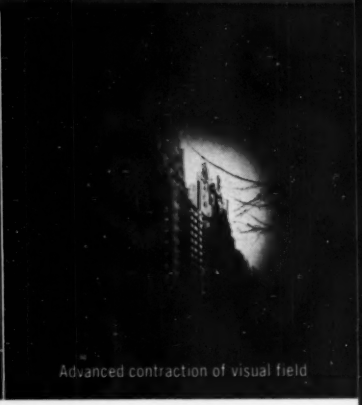
ADDRESS _____

CITY _____ ZONE _____ STATE _____

for topical therapy
of certain types of
GLAUCOMA...

Normal visual field

Beginning contraction of visual field


Advanced contraction of visual field

...two highly effective miotics

HUMORSOL®

Demecarium Bromide

• potent, longer-acting than other miotics • two instillations weekly are often sufficient to control glaucoma • because it is unusually potent, it may be uniquely useful in breaking up peripheral synechiae • aqueous—isotonic with conjunctival fluid • stable—refrigeration not required • 0.25% ophthalmic solution, in 5-cc. bottle with dropper

FLOROPRYL®

Isoflurophate U.S.P.

• long-acting—in glaucoma, one instillation daily is often sufficient; (in strabismus, one instillation every two days to one week) • may be effective when other agents fail • two topical dosage forms—0.1% ophthalmic solution in anhydrous peanut oil, in 5-cc. bottle with dropper; 0.025% ophthalmic ointment, in 3.5 Gm. tubes

also available: **DARANIDE®** Dichlorphenamide for oral control of intraocular pressure, 50-mg. tablets

Before prescribing or administering HUMORSOL, FLOROPRYL and DARANIDE, the physician should consult the detailed information on use accompanying the package or available on request.

MSD MERCK SHARP & DOHME, DIVISION OF MERCK & CO., INC., WEST POINT, PA.

HUMORSOL, FLOROPRYL AND DARANIDE ARE TRADEMARKS OF MERCK & CO., INC.

WHAT'S NEW from PILLING

SOUTTAR INSTRUMENTS FOR ESOPHAGEAL INTUBATION

This set of instruments consists of:

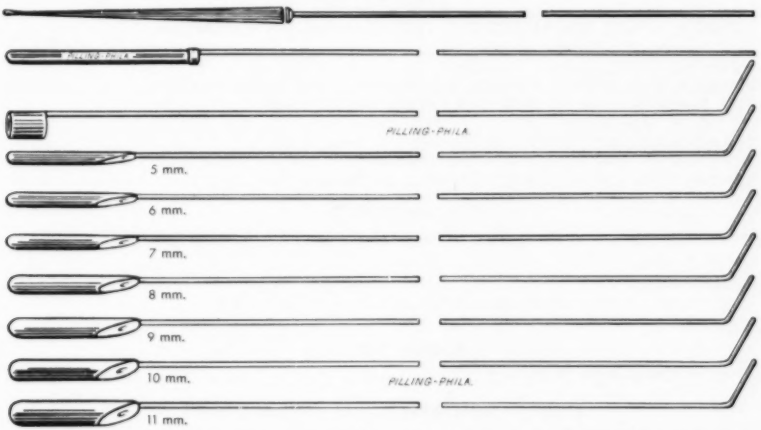
6 Tubes—These gold plated tubes are of two diameters, 8 and 10 mm., and three lengths, 3, 3½ and 4 inches. Constructed with a cone-shaped upper end to rest on top of the stricture, they are oval in section with a spiral twist to prevent upward movement. Because of its flexibility the tube is readily tolerated and seldom displaced.

Conductor—A modification of Jackson's bougie with a flexible gum elastic tip attached to the end where it will not interfere with vision. (8 Fr. diameter)

7 Aluminum Dilators—Short, cylindrical rods (5 to 11 mm.) attached to a rigid steel wire. The axial hole permits the dilator to pass freely over the conductor. By passing the graduated sizes in turn through a stricture it can be easily dilated to full size. As each dilator passes and clears the constriction, an accurate measurement of its length may be obtained.

2 Mandrils for Intubation Tubes—Two sizes for 8 mm. and 10 mm. tubes.

2 Rings for Releasing Tubes—Two sizes for 8 mm. and 10 mm. tubes.



BR 3688 — Write for complete listing and digest of technic

GEORGE P. *PILLING* & SON CO.

Gen'l Offices & Factory: 3451 Walnut St., Philadelphia 4, Pa., 215 EV6-2750

New York Showroom: 5 East 51st Street, New York 22, N. Y.—212 PL3-1476

Columbus, Ohio Los Angeles, Calif.

Cable Address: Surgical-Phila.

TEACHING AIDS

MANUALS

	PRICE
RETINAL DETACHMENT, H. Arruga, et al.	$1.00
OCULAR SURGERY, Conrad Berens and J. H. King	1.00
CATARACT TYPES, F. C. Cordes	2.00
SENSORIMOTOR ANOMALIES OF THE EXTRINSIC OCULAR MUSCLES, Glen G. Gibson and Robison D. Harley	2.00
SLIT LAMP BIOMICROSCOPY, E. Goar, et al.	1.00
OPHTHALMIC PLASTIC SURGERY, W. L. Hughes, et al.	3.00
DESCRIPTION OF THE ORBIT, McCotter, Fralick and Henderson	1.00
GLAUCOMA, Samuel J. Meyer	1.00
THE INTERPRETATION OF VISUAL FIELDS, C.W. Rucker	1.00
REFRACTION, Daniel Snydacker and Frank W. Newell	1.00
EXTRINSIC EYE MUSCLES, H. Saul Sugar	1.00
MICROBIOLOGY OF THE EYE, Ted Suie	1.00
PRINCIPLES OF OTOLARYNGOLOGIC PLASTIC SURGERY, Oscar Becker	1.00
A GUIDE TO THE CARE OF ADULTS WITH HEARING LOSS, L. R. Boies, et al.	1.00
VOCAL REHABILITATION, Friedrich S. Brodnitz	2.00
EMBRYOLOGY OF THE HEAD AND NECK, Jack Davies	1.00
RADIOGRAPHIC ANATOMY OF THE TEMPORAL BONE, J. Brown Farrior	1.00
STAPES OPERATIONS IN 3-D: ATLAS and VIEWMASTER, J. Brown Farrior	12.50
ALLERGY IN OTOLARYNGOLOGY, F. K. Hansel and J. R. Anderson	2.00
MALFORMATIONS AND ANATOMICAL VARIATIONS SEEN IN THE MIDDLE EAR DURING OPERATIONS ON THE STAPES, J.V.D. Hough	1.00
EXAMINATION OF THE LABYRINTH IN RELATION TO ITS PHYSIOLOGY AND NONSUPPURATIVE DISEASES, W. J. McNally and E. A. Stuart	1.00
NONSURGICAL COMPLICATIONS OF OTOLARYNGOLOGIC SURGERY, J. J. Pressman, et al.	1.00

MONOGRAPHS

HELPFUL HINTS FOR HANDLING THE HEARING HANDICAPPED, Gordon D. Hoople, et al.	$0.25
HEARING TESTS, Arthur L. Juers	0.25
PHYSIOLOGY OF THE LARYNX, J. J. Pressman and George Kelemen	0.50
THE EMBRYOLOGY OF THE EAR, NOSE, AND THROAT, O. E. Van Alyea	0.25
STRABISMUS: A SYMPOSIUM, Kenneth C. Swan, et al.	0.50
ALLERGY OF THE EYE, Frederick H. Theodore	1.00
REFRACTION DIFFICULTIES, Clarence A. Veasey, Jr.	0.50

ABSTRACTS

Set contains outlines, briefs of instruction courses as presented at Academy meetings. Unbound.

Ophthalmology: 1961	$10.00
Otolaryngology: 1959	3.00

(1960 and 1961 abstracts not available.)

BOUND VOLUMES

Atlas of Otolaryngic Pathology	$20.00

FILMS — LANTERN SLIDES — FILM STRIPS

THE EMBRYOLOGY OF THE EYE, a motion picture in color with sound. Available on one reel or in two parts on two reels with metal containers and mailing case — Per Print	$200.00
176 Lantern Slides from above film, 2 × 2, in color Mounted in glass, with wooden filing box	125.00
Mounted in cardboard, with plastic and plywood filing box	75.00
THE EMBRYOLOGY OF THE EAR, a motion picture in color with sound. On three reels with metal containers and mailing case — Per Print	500.00

SEND ORDER WITH REMITTANCE TO

W. L. BENEDICT, M.D., 15 SECOND STREET S.W., ROCHESTER, MINNESOTA

American Academy of Ophthalmology and Otolaryngology
THE COUNCIL — 1961

Dohrmann K. Pischel, San Francisco ..... President
Lawrence R. Boies, Minneapolis ..... President-Elect
Frederick T. Hill, Waterville, Maine ..... First Vice-President
Maynard Wheeler, New York ..... Second Vice-President
Leland Hunnicutt, Pasadena ..... Third Vice-President
LeRoy A. Schall, Boston ..... Past President
John H. Dunnington, New York ..... Past President
Dean M. Lierle, Iowa City ..... Past President
William L. Benedict, Rochester, Minnesota ..... Executive Secretary-Treasurer; Editor and Business Manager of the TRANSACTIONS
Kenneth L. Roper, Chicago ..... Secretary for Ophthalmology
Clair M. Kos, Iowa City ..... Secretary for Otolaryngology
A. D. Ruedemann, Detroit ..... Secretary for Instruction in Ophthalmology
Eugene L. Derlacki, Chicago ..... Secretary for Instruction in Otolaryngology and Maxillofacial Surgery
Dean M. Lierle, Iowa City ..... Secretary for Home Study Courses
Glen G. Gibson, Philadelphia ..... Secretary for Public Relations
Victor Goodhill, Los Angeles ..... Councillor
Edwin B. Dunphy, Boston ..... Councillor
Harry P. Schenck, Philadelphia ..... Councillor
Michael J. Hogan, San Francisco ..... Councillor

COUNCIL COMMITTEES

EXECUTIVE, RESEARCH, AND FINANCE
Dohrmann K. Pischel, *Chairman*
LeRoy A. Schall — Lawrence R. Boies
John H. Dunnington — Victor Goodhill
Dean M. Lierle — William L. Benedict

RESEARCH AND FINANCE
(*Subcommittee of Executive, Research and Finance*)
LeRoy A. Schall, *Chairman*
Dohrmann K. Pischel — William L. Benedict

ACTIVITIES
Victor Goodhill, *Chairman*
Edwin B. Dunphy — Lawrence R. Boies
Harry P. Schenck — Frederick T. Hill
Michael J. Hogan

JUDICIAL
Dohrmann K. Pischel, *Chairman*
Victor Goodhill — Harry P. Schenck
Edwin B. Dunphy — Michael J. Hogan

BOARD OF COUNCILLORS
Victor Goodhill, *Chairman*
Edwin B. Dunphy — Michael J. Hogan
Harry P. Schenck

BOARD OF SECRETARIES
William L. Benedict, *Chairman*
Kenneth L. Roper — Eugene L. Derlacki
Clair M. Kos — Dean M. Lierle
A. D. Ruedemann — Glen G. Gibson

PROGRAM
Dohrmann K. Pischel, *Chairman*
Lawrence R. Boies — Clair M. Kos
Frederick T. Hill — A. D. Ruedemann
Victor Goodhill — Eugene L. Derlacki
William L. Benedict — Dean M. Lierle
Kenneth L. Roper — Glen G. Gibson

STANDING COMMITTEES

AUDIO-VISUAL EDUCATION
Dean M. Lierle, M.D., *Chairman* ..... Iowa City
W. L. Benedict, M.D., *ex officio* ..... Rochester, Minn.
Eugene L. Derlacki, M.D. ..... Chicago
Kenneth L. Roper, M.D. ..... Chicago
A. D. Ruedemann, M.D. ..... Detroit

CONSERVATION OF HEARING
Dean M. Lierle, M.D., *Chairman*

SUBCOMMITTEES

Executive
Dean M. Lierle, M.D., *Chairman* ..... Iowa City
Gordon D. Hoople, M.D., *Vice-chairman* ..... Syracuse, New York
Lawrence R. Boies, M.D. ..... Minneapolis
Norton Canfield, M.D. ..... New Haven, Conn.
Howard P. House, M.D. ..... Los Angeles
Raymond E. Jordan, M.D. ..... Pittsburgh
W. J. McNally, M.D. ..... Montreal, Que., Canada
Henry L. Williams, M.D. ..... Rochester, Minn.

Editorial and Exhibit
Henry L. Williams, M.D., *Chairman* ..... Rochester, Minn.
Lawrence R. Boies, M.D. ..... Minneapolis
Norton Canfield, M.D. ..... New Haven, Conn.
Howard P. House, M.D. ..... Los Angeles
Raymond E. Jordan, M.D. ..... Pittsburgh
W. J. McNally, M.D. ..... Montreal, Que., Canada
Kinsey M. Simonton, M.D. ..... Rochester, Minn.

Hearing in Children
Raymond E. Jordan, M.D., *Chairman* ..... Pittsburgh
John E. Bordley, M.D. ..... Baltimore
Victor Goodhill, M.D. ..... Los Angeles
Hollie E. McHugh, M.D. ..... Montreal, Que., Canada
S. Richard Silverman, Ph.D. ..... St. Louis
Joseph A. Sullivan, M.D. ..... Toronto, Ont., Canada

Research
W. J. McNally, M.D., *Chairman* ..... Montreal, Que., Canada
Merle Lawrence, Ph.D. ..... Ann Arbor, Mich.
John R. Lindsay, M.D. ..... Chicago
Scott N. Reger, Ph.D. ..... Iowa City
Harold F. Schuknecht, M.D. ..... Detroit
Juergen Tonndorf, M.D. ..... Iowa City

Hearing in Adults
Lawrence R. Boies, M.D., *Chairman* ..... Minneapolis
Norton Canfield, M.D. ..... New Haven, Conn.
Raymond Carhart, Ph.D. ..... Evanston, Ill.
Edmund P. Fowler, Jr., M.D. ..... New York
Arthur L. Juers, M.D. ..... Louisville, Ky.
James W. McLaurin, M.D. ..... Baton Rouge, La.
Joseph A. Sullivan, M.D. ..... Toronto, Ont., Canada

Noise
Howard P. House, M.D., *Chairman* ..... Los Angeles
Hallowell Davis, M.D. ..... St. Louis
Meyer S. Fox, M.D. ..... Milwaukee
Aram Glorig, M.D., *Research Director* ..... Los Angeles
Gordon D. Hoople, M.D. ..... Syracuse, N. Y.
Clair M. Kos, M.D. ..... Iowa City
Dean M. Lierle, M.D. ..... Iowa City
C. Stewart Nash, M.D. ..... Rochester, N. Y.
Walter A. Rosenblith, Ph.D. ..... Cambridge, Mass.
Joseph C. Serio, M.D. ..... Buffalo, N. Y.

Standardization of Audiometers
Edmund P. Fowler, M.D., *Chairman* ..... New York

STANDING COMMITTEES — *Continued*

Hollie E. McHugh, M.D. ..... Montreal, Que., Canada
Kinsey M. Simonton, M.D. ..... Rochester, Minn.
Juergen Tonndorf, M.D. ..... Iowa City

Eye Banks

R. Townley Paton, M.D., *Chairman* ..... New York
John Harry King, M.D., *Secretary* ..... Washington, D. C.

Implants and Implant Techniques

A. D. Ruedemann, M.D., *Chairman* ..... Detroit
Alston Callahan, M.D. ..... Birmingham
Norman L. Cutler, M.D. ..... Wilmington, Del.
Orwyn H. Ellis, M.D. ..... Los Angeles
Wendell L. Hughes, M.D. ..... Hempstead, L. I., N. Y.
Byron Smith, M.D. ..... New York
Richard C. Troutman, M.D. ..... New York

Representatives from Eyemakers

Lee Allen ..... Iowa City
Roger Alton ..... Southbridge, Mass.
Fritz Jardon ..... Detroit
Hugh Laubheimer ..... Chicago

Ophthalmic Pathology

Michael J. Hogan, M.D., *Chairman* ..... San Francisco
F. Phinizy Calhoun, Jr., M.D. ..... Atlanta, Ga.
John S. McGavic, M.D. ..... Bryn Mawr, Pa.
Theodore E. Sanders, M.D. ..... St. Louis

Consultant in Pathology at AFIP

Lorenz Zimmerman, M.D. ..... Washington, D. C.

Otolaryngic Pathology

Paul H. Holinger, M.D., *Chairman* ..... Chicago
David D. DeWeese, M.D. ..... Portland, Ore.
Edmund P. Fowler, Jr., M.D. ..... New York
George Kelemen, M.D. ..... Boston
Francis Lederer, M.D. ..... Chicago
John R. Lindsay, M.D. ..... Chicago
James W. McLaurin, M.D. ..... Baton Rouge, La.
George F. Reed, M.D. ..... Boston
Ben H. Senturia, M.D. ..... St. Louis

Consultant in Pathology at AFIP

Samuel H. Rosen, M.D. ..... Washington, D. C.

Reconstructive Plastic Surgery

John Marquis Converse, M.D., *Chairman* ..... New York
Wendell L. Hughes, M.D., *Co-Chairman* ..... New York
Oscar Becker, M.D. ..... Chicago
Deane C. Hartman, M.D. ..... Los Angeles
Edgar M. Holmes, M.D. ..... Boston
William C. Huffman, M.D. ..... Iowa City
Charles E. Iliff, M.D. ..... Baltimore
Dean M. Lierle, M.D. ..... Iowa City
Merrill J. Reeh, M.D. ..... Portland, Ore.
Byron Smith, M.D. ..... New York
Sidney K. Wynn, M.D. ..... Milwaukee

Research in Otolaryngology

Gunnar O'Neil Proud, M.D., *Chairman* ..... Kansas City, Kan.
Richard Bellucci, M.D. ..... New York
Donald H. Eldredge, M.D. ..... St. Louis
Cesar Fernandez, Ph.D. ..... Chicago
Aram Glorig, Jr., M.D. ..... Los Angeles
James F. Jergen, Ph.D. ..... Evanston, Ill.
John A. Kirchner, M.D. ..... New Haven, Conn.
Merle Lawrence, Ph. D. ..... Ann Arbor, Mich.
Ben H. Senturia, M.D. ..... St. Louis
Catherine Smith, Ph.D. ..... St. Louis
Juergen Tonndorf, M.D. ..... Iowa City
Hans von Leden, M.D. ..... Los Angeles

Scientific Exhibit

Kenneth L. Roper, M.D., *Chairman* ..... Chicago
Eugene L. Derlacki, M.D., *Co-Chairman* ..... Chicago

Standardization of Tonometers

F. J. Ballintine, M.D., *Chairman* ..... Cleveland
Bernard Becker, M.D. ..... St. Louis
Conrad Berens, M.D. ..... New York
Hertha Binder, M.D. ..... Cleveland
W. Morton Grant, M.D. ..... Boston
D. O. Harrington, M.D. ..... San Francisco
Thomas H. Hodgson, M.D. ..... Toronto, Ont., Canada
Peter C. Kronfeld, M.D. ..... Chicago
W. F. R. Luke, M.D. ..... Toronto, Ont., Canada
Earle H. McBain, M.D. ..... San Rafael, Calif.
John C. McCulloch, M.D. ..... Toronto, Ont., Canada
John M. McLean, M.D. ..... New York
Robert A. Moses, M.D. ..... St. Louis
Adolph Posner, M.D. ..... New York
Robert N. Shaffer, M.D. ..... San Francisco

Surgery of Head and Neck

George A. Sisson, M.D., *Chairman* ..... Syracuse
Edwin W. Cocke, Jr., M.D. ..... Memphis
John J. Conley, M.D. ..... New York
John F. Daly, M.D. ..... New York
Paul H. Holinger, M.D. ..... Chicago
W. Franklin Keim, M.D. ..... East Orange, N. J.
Francis L. Lederer, M.D. ..... Chicago
John S. Lewis, M.D. ..... New York
Dean M. Lierle, M.D. ..... Iowa City
Joseph H. Ogura ..... St. Louis
Joel J. Pressman, M.D. ..... Los Angeles
F. Johnson Putney, M.D. ..... Philadelphia
William S. Trible, M.D. ..... Washington, D. C.

Teachers' Section

Ophthalmology

A. D. Ruedemann, M.D., *Chairman* ..... Detroit

Otolaryngology

John A. Kirchner, M.D., *Co-Chairman* ..... New Haven

Representatives of the Academy to:

American Association for the Advancement of Science

M. Elliott Randolph, M.D. ..... Baltimore

American Board of Ophthalmology

Kenneth C. Swan, M.D. ..... Portland, Ore.
W. Banks Anderson, M.D. ..... Durham, N. C.
Fred M. Wilson, M.D. ..... Indianapolis
F. Phinizy Calhoun, Jr., M.D. ..... Atlanta, Ga.

American Board of Otolaryngology

Francis E. LeJeune, M.D. ..... New Orleans
George F. Reed, M.D. ..... Boston

American College of Surgeons Board of Governors

Shirley H. Baron, M.D. ..... San Francisco
George A. Sisson, M.D. ..... Syracuse, N. Y
Wendell L. Hughes, M.D. ..... Hempstead, L. I., N. Y.

American Committee on Optics and Visual Physiology

Robert L. Tour, M.D. ..... San Francisco
James E. Lebensohn, M.D. ..... Chicago
Goodwin Breinin, M.D. ..... New York

American Orthoptic Council

Frank D. Costenbader, M.D. ..... Washington, D. C.
Philip Knapp, M.D. ..... New York
John W. Henderson, M.D. ..... Ann Arbor, Mich.

American Standards Association Acoustical Standards Board

Edmund P. Fowler, Jr., M.D. ..... New York

American Standards Association Committee for Standardization of Ophthalmic Lenses

Carl J. Rudolph, M.D. ..... South Bend, Ind.
Arthur C. Linksz, M.D. ..... New York

Institute for Advancement of Medical Communication, Council on Medical Television

William L. Benedict, M.D. ..... Rochester, Minn.

International Organization Against Trachoma

Phillips Thygeson, M.D. ..... San Jose, Calif.

National Committee on Research in Ophthalmology and Blindness

Bernard Becker, M.D. ..... St. Louis
A. Edward Maumenee, M.D. ..... Baltimore

National Congress of Parents and Teachers

Frank D. Costenbader, M.D. ..... Washington, D. C.

National Society for Crippled Children and Adults, Inc.

Dean M. Lierle, M.D. ..... Iowa City

SEQUESTRATION CYSTS OF THE FLOOR OF THE MOUTH

LORING W. PRATT, M.D.
WATERVILLE, MAINE

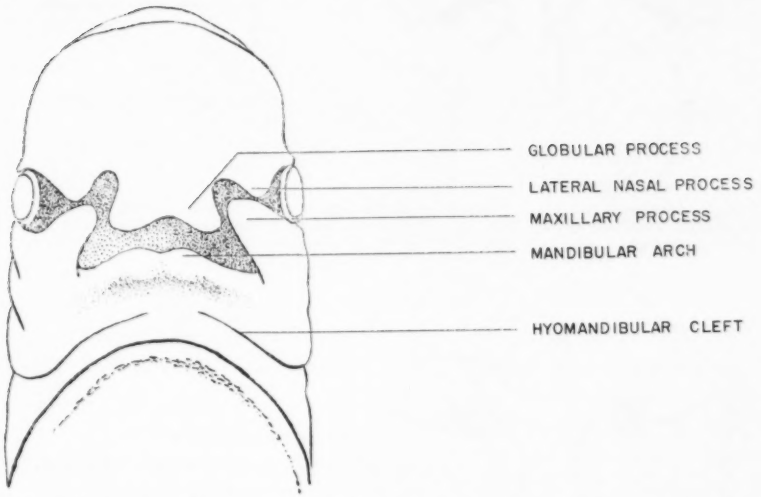


FIG. 1—(Redrawn from Gray, after His) The head of a human embryo about 29 days old, indicating the mandibular arch, the hyomandibular cleft and the stomadeum.

IN reviewing lesions of the floor of the mouth, it is noted that many are the result of embryologic misplacement of tissue rests. The group which are of epithelial origin, although infrequent in occurrence, occasionally grow to a remarkable size. This paper is presented to call attention to this group of lesions.

A sequestration cyst is an epidermoid cyst completely separated from the skin and resulting from embryologic displacement of epidermal tissue. The complexity of the region (fig. 1) and the close approximation of ectodermal, mesodermal, and endodermal elements in the floor of the mouth makes the appearance of cysts in this area more likely than in many other areas during the course of development. There are contributions from numerous structures, including the cephalic end of the foregut, which explain the appearance of nearly all types of cells in cysts of this region. They may contain squamous, stratified, or ciliated epithelium cells or cells undergoing mucoid degeneration. These various cells may appear in the midline from fusion of the mandibular arch (fig. 2) or from thyroglossal duct remnants. Laterally located rests usually appear as the result of enclavement of tissue from

Presented at the Sixty-Fifth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 9-14, 1960, Chicago.

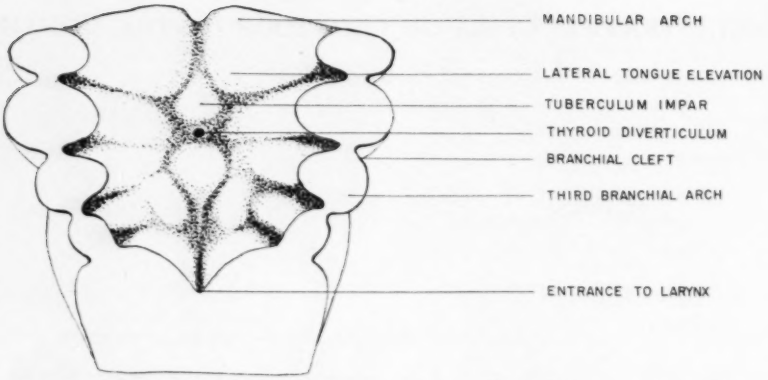


FIG. 2—(Redrawn from Gray) The floor of the pharynx of a four-week-old embryo, indicating the mandibular arch, the second, third and fourth branchial arches, and associated branchial clefts. Tuberculum impar is also seen in the floor of the pharynx.

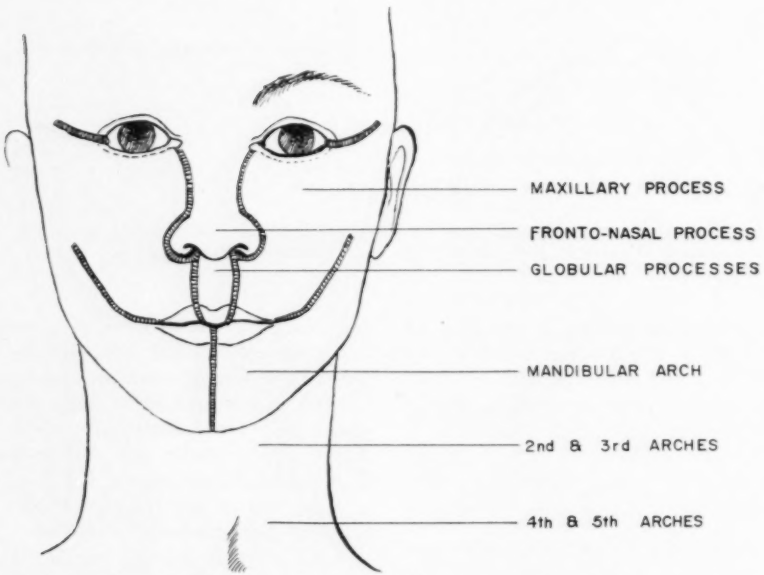


FIG. 3—(Redrawn from Gray) The diagrammatic relation between the adult face and neck and its embryologic derivation.

branchial arches or pouches, salivary glands or ducts, sublingual glands, bursae of the floor of the mouth, or derivatives of the paralingual groove. It is possible that a midline tumor may be directed laterally in its development by the structures it encounters in the course of its enlargement. All of the cystic masses arising in this area may have been at one time or another called

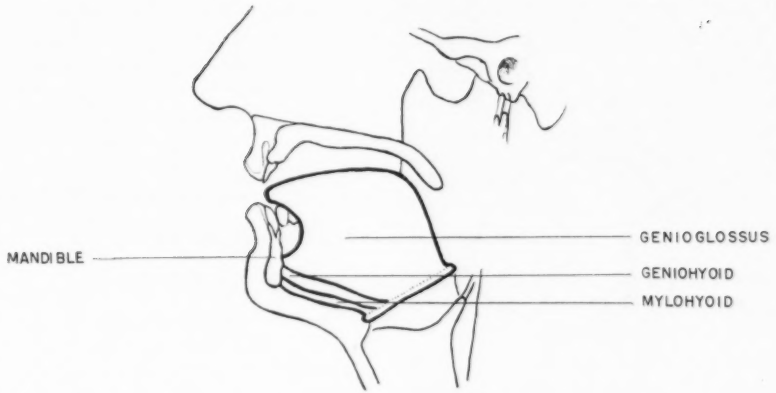


FIG. 4.—The normal anatomic relations of the floor of the mouth and tongue, indicating the mandible, the hyoid bone, and the mylohyoid, geniohyoid and genioglossus muscles.

ranulas, and Meyer[20] feels that those of epidermal origin should be designated as dermoids.

Surveys of the world literature on this subject point to the great rarity of reports of such cases. In spite of this, Debonnelle[4] reported in 1889 that these cysts were known to both Hippocrates and to Celsus. At the Mayo Clinic, from 1910 to 1935, New and Erich counted only twenty-four of these tumors, and Meister in 1937 was able to accumulate from the literature only 143 cases. These reports were considered by Meyer[20] and included in his total tabulation when, in 1955, he stated that the entire group of reported cases at that time numbered less than 160. Out of 54,000 surgical pathology specimens examined at St. Luke's Hospital in New York, only 4 dermoid cysts of the floor of the mouth were reported by Shore in 1938.[27] Two of these were epidermoid cysts and two were true dermoids containing skin appendages. I was stimulated to undertake the investigation leading to this paper when two cases of cyst on the floor of the mouth were brought to my attention within a brief period of time.

The clinical location of these cysts is typical. The midline location from the tip of the chin to the thyroid gland usually accounts for those arising from fusion of the mandibular arches or from the persistence of the thyroglossal duct (fig. 3). Those anterior to the foramen caecum represent derivatives of the mandibular arches, and those from the foramen caecum to the thyroid gland arise from the thyroglossal duct.

Abnormal midline structures derived by fusion of the mandibular arch from the tuberculum impar of His, or from the lateral lingual eminence in the third week of life, usually appear in one of three distinct regions. They are most commonly found in the genioglossal or in the geniohyoid regions. Occasionally they are located laterally. If the location is primarily genioglossal (fig. 5), there is opportunity for them to develop freely between the base of the tongue, the mandible, and the supporting structures of the floor of the mouth, made up of mylohyoid and geniohyoid muscles. This causes expansion of the tumor into the floor of the mouth, where it may freely expand without great in-

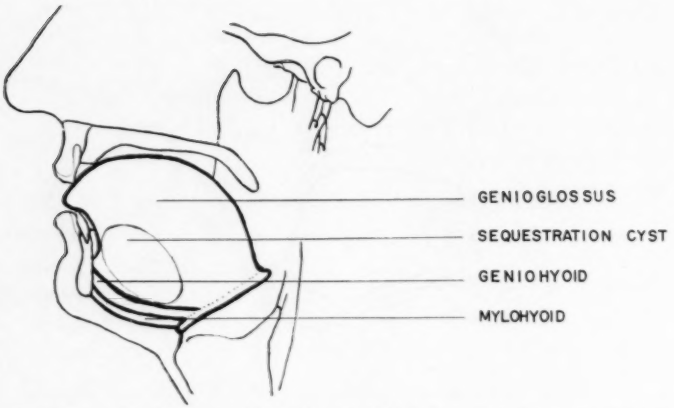


FIG. 5—Cyst located below the genioglossus and above the geniohyoid muscle, pushing the tongue upward and backward.

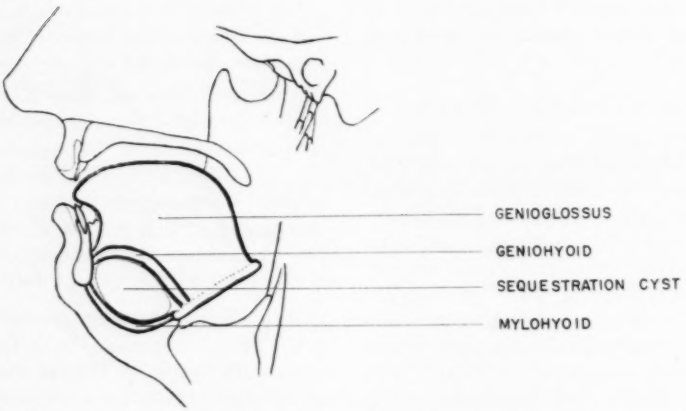


FIG. 6—Cyst located below the geniohyoid and above the mylohyoid muscle, with less deformity of the tongue and more deformity of the submaxillary space.

convenience to the individual until it becomes very large. The geniohyoid cyst is located between the geniohyoid and the mylohyoid muscles (fig. 6) and presents in the midline of the submaxillary region just in front of the hyoid bone or under the chin. This cyst does not produce as much displacement of the tongue, but it does deform the submaxillary space due to the restraint of the genioglossus. Rarely, cysts are found located laterally. These most commonly arise from the external paralingual groove, or from deflection of a midline tumor in the course of its development.

If epithelial tissue is implanted in the deeper tissues of the floor of the mouth, as by trauma, it may give rise to the

formation of such cysts. Epstein and Kligman,[5] in 1957, demonstrated that skin buried in the subcutaneous tissue of the scalp and other areas will live and grow, and it may form either a dermoid or an epidermoid cyst. It is suggested that a minor perforating trauma such as that caused by a toothbrush bristle could cause such a development. The cysts have been noted equally in males and in females. Although they are most commonly found in the age group from 15 to 35 years, they may be found at any time from infancy to old age. They are usually present for a considerable length of time before they come to the attention of the physician, probably because of their painless, insidious onset and gradual increase in size. It is, apparently, common for them to develop to tremendous size before help is sought by the patient, several very large tumors being reported in the literature.

Histologically there are essentially two types of these sequestration cysts. The first is the typical dermoid cyst which is composed of the usual epithelial lining, including hair follicles, hair, sebaceous glands, and sweat glands. The epidermoid cyst, with exactly the same embryologic origin, is devoid of the elements of skin appendages and is found to contain only the epidermis; the contents of the cyst are largely epidermal debris. Both types of cysts have fairly thick walls and are not adherent to surrounding tissues, unless they have been complicated by infection.

The contents of these cysts vary from a cheesy to a relatively liquid material, depending upon the amount of epithelial and sebaceous debris found within the cyst.

The treatment of these cysts is entirely surgical in uncomplicated cases. Although incision and drainage, curettage, injection of sclerosing solutions, and marsupialization have all been suggested at times, the only satisfactory and definitive approach is that of excisional surgery.

Complications of these cysts are relatively uncommon. In general, they grow slowly and to rather large size. The genioglossal cysts push the tongue up and back, and in this way they interfere with speech and eating. The geniohyoid cysts present more prominently in the submental region and do not elevate the floor of the mouth appreciably because of their location below the genioglossal muscle. Although it is possible for them to grow so large that they produce respiratory obstruction, as a rule they are not permitted to go to that point. Patscheider,[24] in 1954, reported death from suffocation due to the presence of a very large ranula. At times a cyst may become infected and rupture and drain, producing a fistula either into the mouth or below the chin. The large majority of the reported cysts have been removed without any complicating infection either before or after surgery. They may rarely undergo malignant degeneration.

CASE REPORTS

CASE 1

Mr. R. V.: White married male television repairman, age 24, first seen September 28, 1958.

The patient visited me because he had a "bump" under his tongue which had recently begun to bother his speech. This had been present for four years and had grown progressively larger during that time. It had only recently begun to bother his speech and had interfered with his ability to swallow food only slightly.

P. H. There was no history of other disease, either serious or minor, except for measles as a child. He had been in service with the Air Force during 1956. There was no history of serious familial disease.

P. E. Cervical nodes: There was no enlargement of the cervical nodes in any cervical chains.

Examination of the ears and nose revealed no abnormality.

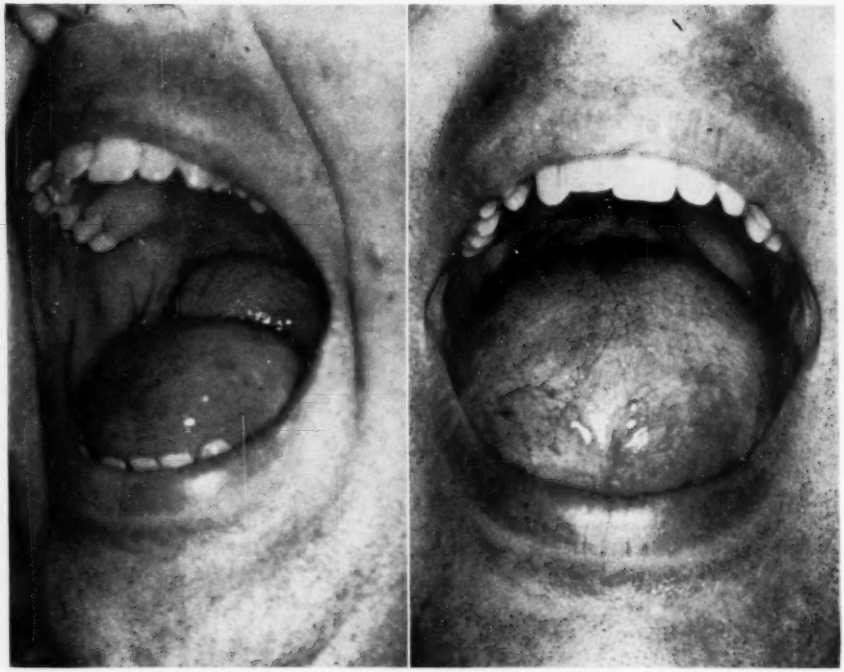


FIG. 7— Case 1, R. V. (Left) View of mouth showing tongue and cyst on floor of mouth. (Right) View of mouth showing cyst being raised and nearly filling mouth and pushing tongue back. Tongue may be seen over top of cyst.

Mouth: There was a large mass located below the tongue, filling the floor of the mouth and causing it to bulge forward. The tongue was normally mobile, but was pushed up and back and provided some obstruction to the pharynx. It was possible for the patient to raise his tongue and pull it back, and in so doing to dislocate the mass and deliver it into his mouth and over his teeth. In this position almost complete obstruction of the oral cavity was noted. When the mass was in its usual position in the mouth, there was some fullness noted in the submaxillary region, on inspection, and there was relief of this fullness as the mass was projected out of its bed. On bimanual palpation the mass had a doughy consistency throughout and was apparently unattached to any of the surrounding structures. There were no other masses palpable in the submaxillary region. Both submaxillary glands were palpated and seemed to be normal in size and consistency. The ducts of the submaxillary glands were entirely normal in appearance and saliva could be expressed from them by manipulation of the submaxillary glands.

Pharynx, tonsils, larynx and nasopharynx were examined and appeared to be normal.

Diagnosis: Enormous cyst of the floor of the mouth.

Recommendation: Surgical removal of this mass.

Operation: 7 December 1959, Thayer Hospital, Waterville, Maine. Using pentothal anesthesia intravenously and succinyl choline, the patient was intubated, the mouth was opened, and a pack was placed in the hypopharynx. After the tongue was pulled forward, a transverse incision was made in the floor of the mouth between the base of the tongue and the orifices of Wharton's ducts,

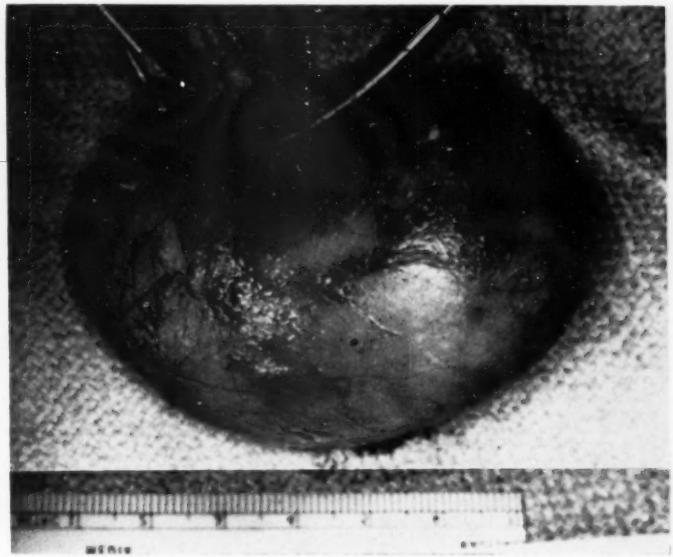


FIG. 8—Case 1, R.V. Gross specimen removed at surgery.

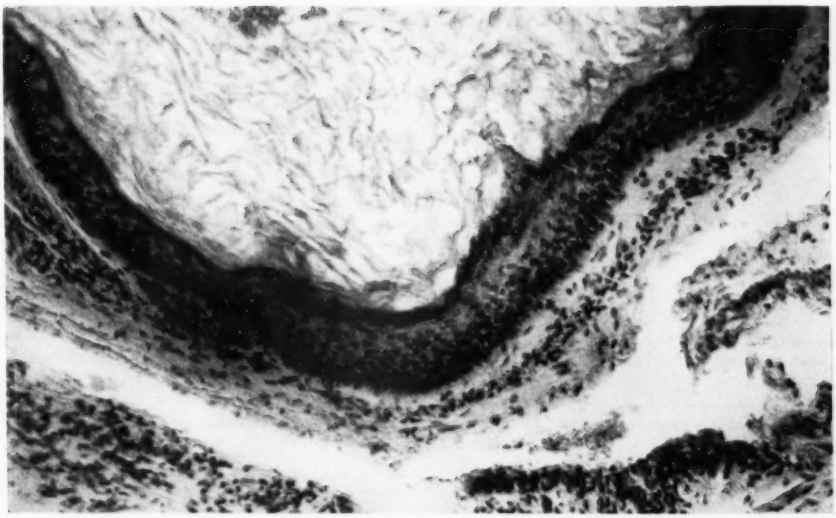


FIG. 9—Case 1, R. V. Photomicrograph of cyst wall and contents, demonstrating the epidermal lining of the cyst without the presence of skin appendages.

and the capsule of the mass was identified. Dissection was then carried about the mass, and it was rather easily enucleated by blunt dissection, much of it by the tip of the finger. The mass was firmly attached only in one place, to the genial tubercle, by a small fibrous band which was divided by sharp dissection. The remainder of dissection was blunt and the mass was removed intact. The wound was then closed with sutures of 00 plain catgut in the deeper layers and 000 Dermalon in the mucous membrane. A rubber tissue drain was left in place and sutured there. The patient tolerated the operative procedure well.

He made an uneventful recovery. The drain was removed on the third postoperative day. He had no trouble eating following this removal, there was no trouble with the function of his tongue, and he could talk more plainly. The soreness left the floor of the mouth in a few days, and he was discharged from the hospital on the third postoperative day in good condition.

On pathological examination of the tissue, the specimen was found to consist of a cystic structure measuring approximately 8 by 6 by 4 cm.; the surface was smooth and glistening; section revealed the wall to be thin; the lining was white and keratinized; the lumen contained a large amount of inspissated yellow-grey keratinized material; no other gross change was recognized.

Microscopic examination revealed no evidence of malignancy. The mass from the floor of the mouth showed cystic architecture; the lining consisted of stratified squamous epithelium; the lumen contained masses of keratinized material; the architecture was entirely characteristic of an epidermoid cyst.

CASE 2

Mr. G. C.: White male age 17. This case is used with the permission of Harry Brinkman, M.D., and Paul Floyd, M.D., Farmington, Maine.

The patient said that he had been aware of a cyst of gradually increasing size located beneath the tongue which now had reached a size sufficient to interfere with normal articulation and extrusion of the tongue. His mother had always been aware of a slight fullness under his chin. There had been slight discomfort for about one year, but real symptoms began only about six months prior to the time he was first seen. He said that there had been no pain associated with this cyst and that his general health has always remained good and that he has never had any serious illness and no previous operations. He now desired to have the cyst removed because of the mechanical difficulty that had developed because of its size.

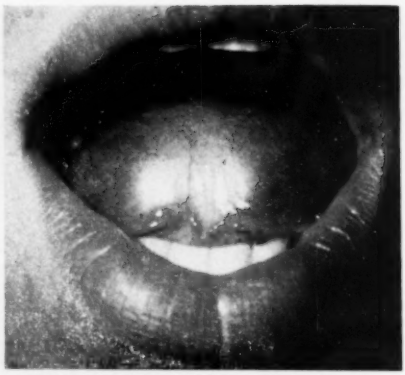


FIG. 10—Case 2, G. C. View of mouth and cyst nearly filling mouth. Wharton's ducts are clearly seen near the margin of the teeth.

On physical examination a large cyst was found located beneath the tongue and easily felt in the submental region. It was fluctuant and transluminated very well. It was apparently located in the midline and was not tender or inflamed. The neck was normal; there was no adenitis and no limitation of motion.

Diagnosis: Mucocele.

Operation: The patient was admitted to the hospital on 24 May 1959 for the removal of a sublingual cyst, thought to be a mucocele. It was easily removed and the postoperative convalescence was uneventful. The patient was discharged home on the third postoperative day to be followed on an out-patient basis.

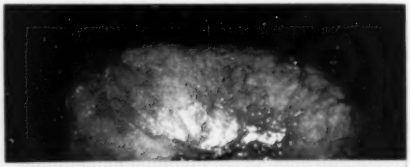


FIG. 11—Case 2, G. C. Gross specimen removed at surgery.

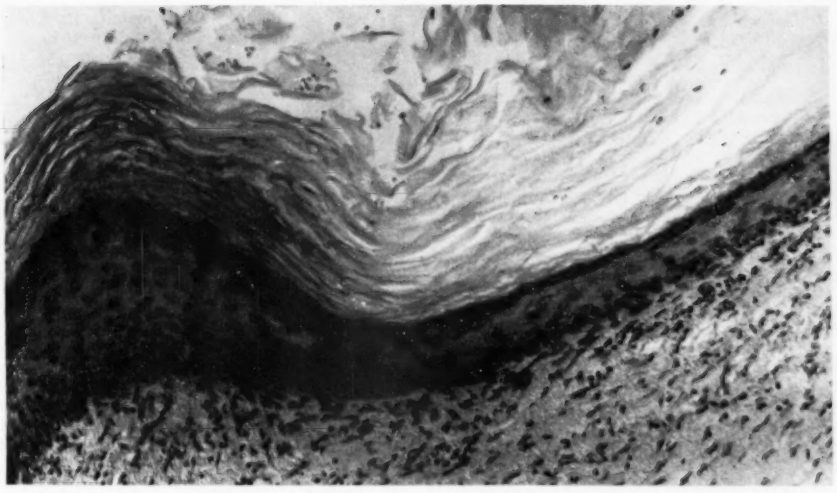


FIG. 12—Case 2, G. C. Microscopic specimen showing cyst wall and contents and demonstrating the epidermal lining of the cyst without the presence of skin appendages.

On pathological examination, the tissue was found to consist of an intact ovoid formalin-fixed cyst measuring over all 6.6 by 5 by 4 cm. The external surface was fairly smooth and gray-tan. The cyst was filled with watery cloudy-gray-white fluid, in which a large amount of soft putty-like pale yellowish-white material was suspended. The inner lining of the cyst was smooth and gray-white. Microscopic examination showed the cyst to be completely lined by compressed stratified squamous epithelium, with desquamated keratotic debris filling the cavity. The epithelium was supported by congested edematous compressed fibrous tissue, in which small numbers of sebaceous glands were identified. Throughout there was no evidence of specific inflammation or neoplasia. The diagnosis of the pathologist was "epidermal inclusion cyst."

SUMMARY

In this paper we have presented the appearance of two large sublingual cysts of the floor of the mouth and discussed their rarity, their embryologic derivation from the enclavement of epithelial rests and their surgical therapy. Their complete separation from the skin makes them true sequestration cysts. Their surgical removal was accomplished and both patients were, as is usual, returned to normal activity. In both cases, the function of the tongue was unhampered postoperatively.

ACKNOWLEDGMENT

I am deeply indebted to Frederick T. Hill, M.D., Waterville, Maine, for his help with this paper. I would like to thank Harry Brinkman, M.D., and Paul E. Floyd, M.D., of Farmington, Maine, for their permission to include their case with mine in this paper; Irving Goodof, M.D., of Waterville, Maine, and Charles Branch, M.D., of Lewiston, Maine, for their assistance with the pathological material; and to Miss Jean Ann Pollard for her drawings and help in the preparation of the manuscript.

REFERENCES

1. Balinsky, B. I.: An Introduction to Embryology, Philadelphia, Saunders, 1960.
2. Colp, R.: Dermoid cysts of the floor of the mouth, Surg Gynec Obstet, 40:183-195 (Feb.) 1925.
3. Cook, Thomas J.: Dermoid cyst: report of a case, Oral Surg, 3:740-742, 1950.

4. Debonnelle, E.: Les Kystes Dermoides du Plancher de la Bouche, These de Paris, 1908.

5. Epstein, William L., and Kligman, Albert M.: Epithelial cysts in buried human skin, Arch Dermat, 76:437-445 (Oct.) 1957.

6. Erich, John B.: Sebaceous, mucous, dermoid and epidermoid cysts, Amer J Surg, 50:672-677 (Dec.) 1940.

7. ———: Epithelioma of the oral cavity: report of a case, Amer J Orthodont (Oral Surg Sec), 33:599-603 (Aug.) 1947.

8. Erich, John B., and Kragh, L. V.: Treatment of squamous-cell carcinoma of the floor of the mouth, Arch Surg, 79:94-99 (July) 1959.

9. Figi, Frederick A., and Dix, C. R.: Dermoid cysts of the floor of the mouth: report of case, Proc Mayo Clin, 14:289-293 (May 10) 1939.

10. Gardner, Ernest; Gray, Donald J., and O'Rahilly, Ronan: Anatomy; a Regional Study of Human Structure, Philadelphia, Saunders, 1960.

11. Gray, Henry: Anatomy of the Human Body, ed. 23, revised and edited by Warren H. Lewis, Philadelphia, Lea & Febiger, 1936.

12. Hitz, John B.: Sublingual epithelial cyst, Arch Otolaryng, 21:338-340 (March) 1935.

13. Jackson, Arnold S.: Sublingual cysts, Wisconsin Med J, 57:266-268 (July) 1958.

14. Johnston, W. H.: Cysts of the floor of the mouth, Ann Otol, 51:917-930 (Dec.) 1942.

15. Kostanecki, von K., and Miesticki, A.: Die Angebornen Kiemenfisteln des Menschen; Ihre anatomische Bedeutung und ihr Verhältniss zu verwandten branchiogenen Missbildungen, R Virchow Arch, 121: 55-87, 1890.

16. Lee, C. M.: Sublingual dermoid; report of case and operation, Chin Med J, 44:49-51 (Jan.) 1930.

17. Marchant, G.: Note sur les kystes dermoïdes du plancher buccal, Bull Societe Anatomique de Paris, 11:653-676, 1886; Prog Med (Par), 1887.

18. Massei, Vitto P.: A case of dermoid cyst of the floor of the mouth, Arch Ital Laring, 64:115 (March-April) 1956.

19. Merrifield, F. W.; Dalitsch, W. W., and Steiner, M. M.: Epidermoid carcinoma of tongue and floor of mouth in infancy and childhood; report of case and review of literature, J Dis Child, 89:281-288 (March) 1955.

20. Meyer, Irving: Dermoid cysts (dermoids) of the floor of the mouth, Oral Surg, 8:1149-1164 (Nov.) 1955.

21. New, Gordon B.: Congenital cysts of the tongue, floor of the mouth, pharynx, and larynx, Trans Amer Laryng Rhinol Otol Soc, 1946, pp. 241-257.

22. ———: Congenital cysts of the tongue, the floor of the mouth, the pharynx, and the larynx, Arch Otolaryng, 45:145-158 (Feb.) 1947.

23. Ozenne, E.: Des kystes dermoïdes sublinguaux, Arch Gen Med (Par), 1:278-302, 1883.

24. Patscheider, H.: Erstickung durch eine ungewöhnlich grosse Ranula [Suffocation from an abnormally large ranula], Mschr Ohrenh 88:290-294 (Oct.-Dec.) 1954.

25. Patten, Bradley M.: The Embryology of the Pig, ed. 2, Philadelphia, Blakiston, 1931.

26. Sarason, E. L., and Roberts, F. N.: Hygroma colli of the newborn infant involving the floor of the mouth, Arch Surg, 67:623-628 (Oct.) 1953.

27. Shore, Benjamin R.: Sublingual epidermoid cysts, Ann Surg, 108:305-308 (Aug.) 1938.

28. Skillern, P. G.: A contribution to the surgical pathology of ranula, Surg Gynec Obstet, 29:447-449 (Nov.) 1919.

29. Smathers, Charles B.: Teratoma of the floor of the mouth, Ann Otol, 68:159-163 (March) 1959.

30. Spalteholz, Werner: Hand-Atlas of Human Anatomy, ed. 7 in English, Philadelphia, J. B. Lippincott, 1943, vol. III.

31. Stein, Otto J.: Cysts in the floor of the mouth, Ann Otol, 34:1028-1041 (Dec.) 1925.

32. Toldt, C.: An Atlas of Human Anatomy, New York, Rebman, 1904.

PSYCHOLOGICAL CONSIDERATIONS IN THE MANAGEMENT OF CANCER OF THE EAR, NOSE AND THROAT

DANIEL MILLER, M.D.
BOSTON, MASSACHUSETTS

THE 1960 program of this society lists many well-known skilled head and neck surgeons who have come here to inform us of new or modified techniques and approaches aimed at the cure of cancer. We are indeed fortunate to have such men in this expanded field of otolaryngology. They bring us facts and statistical evidence to prove the worth of their most recent contributions to the eradication of cancer. I congratulate these leaders and appreciate the work of their investigations.

The subject for my discussion stems from exposure to an increasing number of patients with cancer or suspected cancer and the socioeconomic environment in which they move. It is concerned not only with facts associated with the management of cancer but also, of deep necessity, with human values as well.

We physicians are constantly faced with decisions: "Should this gland be biopsied?" "Should this area be biopsied or shouldn't it?" "Should the possibility of cancer be suggested to the patient or to his family?" "Can this lesion be irradiated without the loss of an eye?" "Can this larynx be saved and still give as good a chance for cure by other means?" It must be repeatedly stressed that each situation requires an individual decision.

What qualifies us to say and do what is best for such a patient? How will the decision of management affect the patient's family and business associates? We must meet this challenge not only as doctors, but as humanitarians as well. Our qualifications must include a knowledge of the basic psychologic needs of the individual as well as the technical skills to eradicate the organic disease.

At this point I would like to translate the remarks of one of the world's greatest physician-philosophers, Dr. Albert Schweitzer, in his analysis of the present world situation into a similar situation in the field of cancer management. Dr. Schweitzer feels this to be the most dangerous period in history because heretofore Nature has controlled Man, but now Man has learned to control elemental forces before he has learned to control himself. Many physicians have learned the technical skills for excising life-destroying disease such as cancer before they have developed a consciousness or a philosophy of life for themselves, a lack which cannot fail to be reflected in their decisions and their surgical procedures. The objective skill of the surgeon must be tempered accordingly before he embarks on this organ-eradication decision with its many ramifications.

One who treats cancer must be a conformist to a considerable degree. He usually follows the dictates of carefully evaluated statistical evidence compiled at five-to-ten-year intervals in tumor clinics, which reveals the best existing approach to various lesions. He is a conformist in that he applies these tech-

Presented at the Sixty-Fifth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 9-14, 1960, Chicago.

niques so that he may give the best chance for cure or palliation depending on the type, location and extent of the cancer in the afflicted individual; that is, the same individual who also has an economic, psychologic, and moral responsibility to his family, his business associates, his employees, his community; and who has to live with himself both day and night in the months ahead.

But, cancer located in the areas pertinent to the field of otolaryngology is not an issue that can be settled on the basis of statistical past experience alone, because its management seems to involve an organ of function, or the possibility of a cosmetic deformity. This, then, becomes the crux of our problem. The organ of function, be it the eye, ear, nose or larynx; or the physical feature, be it the auricle, facial nerve or nasal configuration; when viewed in terms of excision and deformity tend to blunt the surgical knife, or the irradiation beam, and the mind guiding them.

How deep, how wide should the excision be; is destruction of the ear, or the eye, or the larynx necessary; how much of the nose must one remove; can one excise the tumor and save the facial nerve? Will an attempt to save a facial nerve be made at the expense of a patient's life? How often is this nerve saved in order to avoid cosmetic dysfunction, only to find that residual cancer in the ear or parotid gland ultimately destroys the nerve anyway in the not too distant future; and, incidentally, ultimately destroys the patient's life as well. The weight of the decisions at the first surgery is tremendous.

Who gives us the power to decide what is best for the patient? Can any of us not feel humble with such tremendous responsibility for life and death, or the prospect of a living death with intense suffering being vested in our hands and our consciences?

Well, one must be objective in his decision and face the consequences of his acts or judgment in his work as a physician as in his other worldly endeavors. Maturity is judged on the basis of how much one has learned from past experiences, whether satisfactory or unsatisfactory. Therefore, mature objective judgment is most essential in the management of patients with a life-destroying disease such as cancer. Our main purpose is to eradicate, if possible, the disease process with a minimum of loss of organs of function and a minimum of loss of physical feature, and to restore such an individual to his place in society in as short a time as possible and as reasonably close to his former status as the nature of the disease will allow. His emotional stability should be given as much attention as possible under the circumstances; his self confidence must be restored because without it he will live in constant fear of recurrence of his disease, which soon reflects itself in his family relationship, his work and the world about him. Every known method for modifying the severity of the emotional distress should be employed. Sufficient time must be allotted to the patient and to his family for this purpose.

Therefore, the problem of cancer is twofold: (1) the problem of eradication or modification of the disease in order to eliminate or reduce suffering, and (2) the eradication or modification of the emotional upheaval associated with the knowledge that "I have cancer."

Let us turn to the first problem. We all aim for complete eradication of the cancer if possible, but the possibility in each physician's hands varies with his training, his skill, his courage, his objectivity, and to some degree a little

wishful thinking. Be that as it may, let none of us feel so all-powerful that we cannot profit by another opinion, or additional surgical assistance, which in some cases may mean the difference between success and dismal failure. There is no halfway approach to the management of cancer. A successful goal is our aim no matter what technique is employed.

The areas of possible stumbling in our field lie in those locations where cosmetic deformity of varying degrees might be avoided. The risk of such deformity is important, but not all important, if there is a reasonable chance for cure. If there is not a reasonable chance for cure, then the possibility of great physical suffering becomes a serious roadblock to the management of that particular lesion. For example, if the disease involves the soft tissues of the cheek, the upper lip, the root of the nose, the ethmoid region and the orbital fascia, should one do a hemifacectomy inclusive of all the tissues grossly involved and a wide margin beyond it? Is this mutilating operation with its very remote chance for cure—possibly 1 per cent—indicated in such a patient? Even if palliative roentgen therapy is used, the same problem in all probability will return at a later date with a recurrence of the disease. Should this patient then receive no surgical chance for cure, knowing full well his desire and love for life? The choice of which therapy is best suited for this particular individual at a specific point in the disease points up the need for a deep philosophical evaluation on the part of the physician in charge.

If a cancer of the ethmoid sinuses or antrum reaches the orbital fascia and it cannot apparently be resected completely (and not very many can be), then the best chance for cure lies in the exenteration of that orbit and its contents en bloc, if possible, with the rest of the nearby tumor. Yes, one gets away with not doing the orbital procedure on occasion, but the saving of an eye in most instances may mean the loss of a life and the eye as well in the not too distant future. True, no one likes to remove a normal eye if it can be saved, but if in real doubt as to the extension of the disease to the orbital fascia, the most profound judgment rests heavily on the surgeon managing such a problem. It is my conviction that the 27.5 per cent five-year cures for cancer of the antrum reported by Dr. Schall in 1945 will be improved upon with greater utilization of the technique of total maxillectomy and exenteration of the orbit propounded by Dr. Harold Tabb in such cases. It is emotionally distressing to many a surgeon to remove the normal eye because he feels that with a little more knowledge of just where the cancer extended he might save it, and who knows what may happen to the other eye in the time ahead. This is a moment for objectivity for the surgeon, but the objectivity should not mean implied disregard for a very vital sense organ and eventual physical deformity caused by the loss of such an organ. Prostheses and skin graft techniques are improving all the time, and eye and maxilla depressions have been restored with sufficient success and increasing success to make such a procedure worthwhile.

Let us turn to another area. If a cancer of the ear involves the concha within one centimeter of the external meatus and possibly the underlying tissues, and its complete eradication means a modified radical mastoidectomy and removal of most of the auricle, it should be done. We have already shown that 85 per cent of such patients will die of the disease in ten years or less if not so treated. Removal of the auricle results in a physical deformity, but it can be lived with. Plastic prostheses, beautifully fashioned

to replace these auricles, can now be worn without too much trouble and without too great an alteration in the appearance of the patient. Plastic procedures might also be employed with great benefit. To do less surgery than is required just to save an auricle could mean death on that basis, and does mean death in so many of these patients.

Let us consider the larynx. If a small cancer of a freely movable cord treated either by irradiation or by laryngofissure will give similar 87 to 92 per cent five-year cures, then why should a vocal cord be removed with a resultant speech disturbance in most instances? True, there are complications from irradiation which may, in a very small percentage, result later on in such edema and fixation of the cords that a permanent tracheotomy and even total laryngectomy may become essential for life; but with laryngofissure there is a much higher percentage who have permanent dysphonia. It is true, of course, that surgical extirpation is a treatment of short duration and the patient can return sooner to his family and society, but with a husky voice that is frequently poorer in quality than before the operation. He can also return to his position or business and obtain greater immediate economic advantage than if he were forced to give up more time from his work were irradiation the form of therapy employed. The irradiation treatment is now much less distressing to a patient than formerly, because of super-voltage rotational techniques and the lack of the formerly observed skin breakdown. This treatment takes five to six weeks and keeps many of the patients away from their business and also from social contacts toward the end of the treatment. If the patient lives at some distance from the point of treatment, he is away from his home and business practically all this time. These patients often prefer not to be exposed to their associates at this time, because of their own fears of possible impending death as well as the pity expressed awkwardly by others. However, the voice returns much closer to normal in the irradiated patient and attention to their plight by others becomes less evident with the passage of time than in those who have had laryngofissure.

However, by virtue of the location and extent of the disease in the larynx, and on the basis of past statistical evidence, if surgery is believed to be by far the preferable form of therapy, then the loss of an organ of function and physical external appearance becomes of lesser importance, and this radical surgery must be done. Total laryngectomy has become a common procedure for extensive cancer of the larynx in all the major centers of the world. This procedure has been recommended for specific reasons, such as the fixation of a cord, involvement of the ventricle and false cord, subglottic extension of the tumor, and so forth. This radical procedure, despite its many personal and environmental ramifications, has been a lifesaving measure for thousands of people. Many physicians and patients who have less knowledge of the wonderful end-results with total laryngectomy, tend to raise more questions about such a procedure being done than they would about total gastrectomy for cancer of the stomach. Yet, total laryngectomy has cured considerably more patients with cancer of the larynx than the gastrectomy has for those with cancer of the stomach. However, we are dealing with the loss of an important organ of function which is obvious in all of the patient's contacts. Therefore, a word of caution must be introduced. Total or partial laryngectomy should not be advised indiscriminately just because the diagnosis of cancer of the larynx has been made. The quick eradication of the disease surgically makes more sense to

some physicians than the slower, less dramatic method of irradiation. Mature and deliberate judgment once again must be utilized and decisions modified if necessary to meet the individual requirements in all such instances.

Many attempts have been made to do hemi- or partial laryngectomies. It has been advocated by Ogura, Som, Pressman, Alonzo and others with the idea of saving such larynges. This can be very good, and it can be very bad, depending upon the judgment and the skill of the surgeon. The extent of the disease in a particular patient is often difficult to evaluate and the decision as to the preferred choice of therapy rests in our hands. Wherever it is possible, let us save any organ of function, such as the larynx, to avoid such deformities as the permanent tracheostomy. However, the compromise should never be made if there is a limited chance for success. The first operation for cancer should always be the best operation to eradicate it. That is well known to all of us.

We all know the tremendous help radical neck dissection has been to us in saving countless numbers of patients who might have died as a result of regional metastatic gland involvement with its eventual, miserable exitus. Bilateral neck dissections have also been of tremendous help in still fewer cases. The physical deformity in unilateral neck dissection is very little compared with the accomplished results, but the physical deformity of the bilateral neck dissection plus the possibility of cerebral vascular changes that may produce hemiplegia and invalidity is a more serious problem. Considerable thought should be given to the possibility that the limited chance for survival given the patient in eradication of widespread metastatic cancer by bilateral neck dissection will later make the patient's future a living death, and the patient's family environment one of an active nursing home with its physical, emotional and financial strain. The decision to do such a procedure has many ramifications far and beyond the technical skill of the surgeon in the operating room.

The scope of this paper could include discussion of hemimandibulectomy and neck dissection, excisions of portions of the nose and many other procedures which carry with them a considerable number of social problems not only for the patient, but for his family as well. This, however, would merely be repetition.

This discussion so far might imply that I do not favor radical surgery, but this is not so. I advocate and urge it in every instance where there is a reasonable chance for cure despite the necessity of eliminating an organ of function or producing a cosmetic deformity. But I always keep in mind the possible innumerable ramifications involved in my decision to do or not to do a particular procedure for a specific tumor in a specific location, in a specific individual, a member of a specific family unit in a specific community.

Let us turn to the emotional considerations in the patient with cancer. The cancer patient when informed of his condition undergoes an understandable immediate depression; and then, in order to face reality, he attempts to adjust by developing a new attitude toward life. Many cannot and never do adjust. For those who try, it is a tremendous undertaking. Some are so shocked and numbed that they feel detached from everything about them for some time. Others entertain suicidal thoughts, which are fortunately of short duration. As the procedure for excision of the cancer and the body's altered functions are explained to him by his physician, the patient certainly passes through a phase of bewilderment. For each individual

there is a different cultural, physiological or psychological factor which determines the significance of this grave event in his life. It is at this point that the partner, husband or wife, can smooth or obstruct the road to successful adjustment. If there has been tension and conflict of some moment between husband and wife prior to the excision of a cancer of a larynx by total laryngectomy, the situation may worsen considerably due to the sudden poorer communication between them, both psychological and physical. The healthy member may either mellow and become overconsiderate or, as we so often see, the relationships may become more strained. Tension, anxiety, guilt feelings manifest themselves in both partners, resentment increases; covert hostility may become overt.

Since most total laryngectomies are in men, the female partner becomes the most important part of the physician-patient-family team. It has been wonderful to see how the women have come through in most instances. They have shown truly heroic qualities. However, the few that do not have entered a miserable existence almost equaling that of the unfortunate laryngectomee. Prior to a laryngectomy, discussion by the surgeon with the wife of a husband's real needs, his emotional problems, his future battle to be once again recognized as a whole man, and not a part-man, is so valuable to prevent a breakdown of relationships.

The total laryngectomee is quite worried about his family's response to surgery. He interprets the loss of his voice box as something which has reduced his value and his acceptability by his family. His dignity has suffered a severe blow. His fear of social rejection is a real one. Despite the wonderful work done by the esophageal speech therapists, how many employers, and that includes hospital administrators, are willing to employ these people? The social prejudices carry over into our realistic life more than one would like to think. To many people, including some physicians, cancer is a "dirty disease." It is still considered a mark of disgrace to many lay people, who must be educated to the contrary. The fear of loss of earning power and economic insecurity is perhaps the most serious problem that the healthy spouse must help solve. This in itself provides more fuel for the fire in the patient's soul, producing more grief and guilt. The fear of death from the disease overrides these fears, but somehow most patients seem to sublimate it fairly well. The immediate anxieties of the present, the realities of day-to-day living are enough to push any one of these patients into a well of despair. We physicians must recognize and appreciate these feelings in our patients much more often than we have. One could compare equally the loss of the larynx with the loss of an eye or an ear or a nose, but to a lesser extent. We live in a world of closer and closer communication, and any interruption in this chain of communication, like the loss of an organ of communication, can set off a reaction of psychological responses that can be tragic.

In conclusion, we physicians whose duty, obligation and responsibility it is to eradicate any cancer to the best of our ability must reflect, evaluate and consider with mature judgment the best plan of attack on cancer. We must consider solemnly the probable necessity for the elimination of an organ of sense or function, and/or the production of a severe cosmetic deformity as a result of such a plan. We should consider not only these tiny, wildly growing cells, but the body and soul of the patient, his family, his neighbors, and his associates; and then ask ourselves, is this what I would want done for me or mine?

BIBLIOGRAPHY

Alonso, M. Justo: Partielle laryngektomien, Z Laryng Rhinol Otol, 30:149-157 (April) 1951.

Miller, Daniel: Cancer of the external auditory meatus, Laryngoscope, 65:448-461 (June) 1955.

Ogura, Joseph H.: Supraglottic subtotal laryngectomy and radical neck dissection for carcinoma of the epiglottis, Laryngoscope, 68:983-1003 (June) 1958.

Pressman, Joel J.: Cancer of the larynx: laryngoplasty to avoid laryngectomy, Arch Otolaryng, 59:395-412 (April) 1954.

Schall, LeRoy A.: Malignant neoplasms of the nose, paranasal sinuses and nasopharynx: evaluation of surgical treatment, Trans Amer Acad Ophthal Otolaryng, 55: 209-213 (Jan.-Feb.) 1951.

Som, Max L.: Laryngoesophagectomy: primary closure with laryngotracheal autograft, Arch Otolaryng, 63:474-480 (May) 1956.

Tabb, Harold G.: Carcinoma of the antrum, Laryngoscope, 67:269-341 (April) 1957

RECONSTRUCTIVE SURGERY FOR THE ADULT CLEFT PALATE CRIPPLE

ORION H. STUTEVILLE, D.D.S., M.D.
CHARLES JANDA, D.D.S., M.D.
CHICAGO, ILLINOIS

BY INVITATION

THE impact on the parents and family of an infant born with a cleft lip and palate defect is profound. Admittedly this congenital defect is a tragedy, but fortunately for children on whom reconstruction is performed at an early age, most psychological implications are avoided. The adult who may have made an excellent adjustment by use of a prosthesis may not be as fortunate. The loss of teeth in middle age may make the wearing of such a prosthesis difficult or impossible. If he is forced to compete in the open labor market, finding and keeping a job may be thwarted by the disfigurement. Fortunately, it is possible for a "cleft-palate team" to rehabilitate such an individual from the sociologic as well as the medical aspect.

Since the days of Trendelenburg and Passavant, who did much of the early work on cleft palate repair, many procedures and devices have been designed to reconstitute palatal defects. These men originated the idea of turning a flap from the pharyngeal wall as a means of repairing the cleft palate. Longacre and DeStefano[2] reported a series of fifty-two posterior pharyngeal flap procedures, with and without palatal repositioning, primarily for postsurgical repair of the scarred cleft palate with accompanying nasal escape and typical speech defects. They describe their repair as follows:

> A flap of varying size is raised from the posterior pharyngeal wall. The palate is lengthened by rotating a flap from the superior surface of the soft palate. The pharyngeal flap is then inserted into the defect. The procedure is modified in some instances by suturing the pharyngeal flap into the defect and anchoring the flap from the nasal surface of the soft palate to the posterior pharyngeal wall, at the base of its flap.

The only postoperative complication noted was the breakdown of two of the early flaps. Nasal escape was diminished, with no mention of any change in dimension of the pharyngeal flap or increase of nasal escape as time passed. Longacre and DeStefano do note the gradual softening and increased function of the scarred palate, due to revascularization of the tissue from the pharyngeal flap.

Webster and his colleagues[4] in their preliminary report on cleft palate closure, advocate a procedure in which a posterior pharyngeal flap is combined with a dental appliance to close the hard palate cleft. This dual approach is de-

---

Dr. Stuteville is Professor and Chairman, Department of Oral and Maxillofacial Surgery, Northwestern University Dental School, Chicago.

Dr. Janda is Resident in Surgery, Northwestern University Medical School, Chicago.

Presented in the *Special Program* of the Committee on Plastic Reconstructive Surgery: Otolaryngology at the Sixty-Fifth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 9-14, 1960, Chicago.

signed to investigate and circumvent the collapsing effects of a palatal closure on the maxillary arch. Within the scope of the study are congenital abnormalities in growth that may accompany a cleft of the palate, the lip, or both. Their procedure is as follows: A flap from the soft palate is turned over to be joined to its opposing member on the other side of the cleft. A posterior pharyngeal flap is then attached to both the flaps and their donor sites. Relaxing incisions or detachment of the palatal aponeurosis is not necessary, and raw surfaces that would heal with contraction are eliminated. The dental appliance is then constructed to cover whatever defect remains. Closure of the hard palate will be delayed until the child is between 5 and 8 years of age. Difficulties encountered with this technique have been several upper respiratory and middle ear infections, and problems in adjusting the dental appliance.

Moran[3] describes a technique of basing the pharyngeal flap below and turning a wide, broad based flap, which is sutured to a denuded cuff on the posterior border of the soft palate. The resultant flap will contract and tube itself, pulling the soft palate posteriorly. The same technique can be used with the flap based above; this time denuding the nasal surface of the soft palate and attaching the pharyngeal flap there. Postoperative complications, when encountered, included hemorrhage, flap detachment and neck stiffness with a mild cervical adenitis. Speech results were excellent or good in twenty-three of thirty-five cases.

Conway, in his article on the management of complicated cleft palate cases in which extensive scarring occurred postoperatively, describes a one-stage pushback procedure, combined with a pharyngeal flap. He prefers a flap based inferiorly. The superior constrictor of the pharynx and the mucosa are sutured together before the pharyngeal flap is joined to the soft palate. A palatal flap is developed by incising the oral mucosa and turning it posteriorly on an axis represented by the free border of the soft palate. The pharyngeal flap is then sutured to this rectangle of raw palatal tissue. In the pushback phase of the procedure, a mucoperiosteal flap is elevated, embracing most of the palatal mucosa, exposing the palatine canals on either side. The posterior walls of the canal are removed and the hamular processes fractured. This frees the palatine neurovascular bundles, and the flap then can be moved posteriorly. Complications are noted when the pharyngeal flap is made too wide, causing inflammation about the openings of the eustachian tubes, occasionally resulting in an otitis media. Here, too, the pharyngeal flap tubes itself, giving, as the author states, the impression that there is an extension of the uvula attached to the posterior pharyngeal wall. Results of the combined procedure showed speech improvement judged as excellent in all eight cases performed; a distinct improvement over the push-back or the pharyngeal flap done above.

A typical case has been chosen to illustrate the procedure and the problems involved in dealing with the adult cleft-palate cripple. A young mother of three children was forced to seek employment following the death of her husband. This woman had a congenital cleft of the lip, lateral alveolar arch, hard palate and soft palate. Attempts had been made to close the defects when the woman was very young. Her complaints, in addition to her appearance, included frequent sinus infections and liquids issuing from the nose while drinking. As in so many of these patients, the mandible appeared prognathic because of an underdevelopment of the middle third of the face (fig. 1).

FIG. 1—Lateral view of the patient showing underdevelopment of the middle third of the face and a relative prognathic mandible.

Examination revealed a short tight palate with little levator movement. Mesial movement to the lateral pharyngeal wall was good. The velopharyngeal valve was not adequate for speech. There was a postoperative left unilateral complete cleft of the lip, alveolar arch and hard and soft palates. A perforation of two to three millimeters was present in the alveolus. The lip scar was fair with an irregular vermilion border. The mucocutaneous free margin was notched. The lip was tight; the nose broad and flattened on the left side and slightly depressed. All of the teeth had been removed because of multiple carious lesions.

Speech was nasal and marked by excessive nasal emission of air on all pressure consonants, producing distortion. This distortion was due to the nasal emission as well as distortion of the sibilant sounds because of the edentulous state.

The following recommendations were made: Special splints would be constructed to maintain the maxillary-mandibular relationship following mandibular section, as well as an upper dental appliance to assist speech if necessary, and a mandibular denture to be placed postoperatively. Surgery recommended included a mandibular section, pharyngeal flap, deepening of the labial sulcus to help denture retention, placement of denture, and later cosmetic revision of the lip and nose. Cephalometric roentgenograms and dental radiographs were taken. Speech therapy was planned following the outlined course of treatment.

The first corrective operation in the series was a push-back procedure of the mandible. Under local anesthesia, a low tracheostomy was performed, with a tracheal tube placed prior to anesthesia. The tracheostomy was indicated because pushing the mandible back and fixing it to the maxilla might produce airway blockage postoperatively. A two-inch incision was made behind the ramus of the mandible and parallel to it, starting from the lobe of the ear and carrying it down through the deep fascia. The posterior surface of the mandible was exposed by blunt dissection and the masseter muscle elevated. An elevator was passed up into the coronoid notch. With a Jordan-Day motor and drill, the mandible was sectioned, beginning at the notch and extending down to the posterior surface of the ramus. The groove was widened, the width of the bone removed being equal to the proposed push-back of the mandible. The teeth were thus brought into occlusion. Next, a hole was drilled through each fragment of bone in order to fix it with direct wiring.

A similar procedure was carried out on the opposite side. Fixation was necessary because of the pull of the external pterygoid muscle tending to displace the head of the mandible. Rubber drains were placed and a pressure dressing applied. A maxillary prosthetic ap-

pliance was placed in the mouth after cutting the muscle attachment in the left buccal mucosa. This deepening of the sulcus was done for purposes of denture retention. The appliance was fixed to the maxilla by a through-and-through Kirschner wire. A mandibular appliance was wired around the symphysis. The relationship of the mandible to the maxilla was established with intermaxillary elastics (fig. 2). An alternate method might include putting an onlay denture in the mouth, lowering the occlusal line of the maxilla, thereby depressing the mandible. The upper lip can be built out to produce a satisfactory profile. This technique actually produces a better result, since the full length of the face is restored, but once the teeth are lost, so is the retention of the upper denture. The entire restoration will be lost. For this reason, we have discarded the procedure.

FIG. 2—Lateral view of the patient following mandibular section and pushback.

In cases where the upper lip is too tight, an Abbe-Estlander flap is utilized. The lower lip in these cases is often redundant, so two deformities can be remedied at once.

One year later, the second stage in the surgical rehabilitation of the patient, a pharyngeal flap, was accomplished. The palate was inadequate as the result of a deficiency of tissue at the time of the first cleft palate closures. There was a three-millimeter defect during function, the patient being unable to close the nasopharynx during phonation. Under general endotracheal anesthesia, the palate was split in the midline for a distance of one centimeter. From this spreading incision, lateral incisions were made to the pharyngeal walls, on the nasal surfaces of the palate. The mucosa was undermined and reflected down to the posterior surfaces of the pillars. A wide pharyngeal flap was then outlined, which embraced nearly the entire width of the posterior pharyngeal wall. The mucosa, the superior constrictor muscle, and a portion of the deep fascia were turned up as a flap. A three-millimeter width of mucosa was left on the right side and two millimeters on the left. The flap was sutured against the raw surface of the nasal portion of the soft palate with interrupted mattress silk sutures. The lateral surface of the flap was sutured to the lateral pharyngeal wall with interrupted plain catgut sutures. The mucosal flap that had been turned down from the nasal surface of the palate was closed across the midline and to the posterior pharyngeal wall. The suture line was then reinforced with interrupted silk sutures. The posterior pharyngeal wall defect, created by rotation of the flap, was closed. A traction suture was placed through the tip of the tongue to be used in case of airway blockage.

Several months later, the scar deformity of the upper lip, the deviated nasal septum and the deformity of the nose were corrected. This young woman

has now completed her surgical and dental rehabilitation. Visits to the psychologist and speech therapist are continuing with gratifying results. In appearance, she has become a rather attractive young woman who is developing a normal social life. She is employed in a position where she is in contact with people. In the case of this young lady we have achieved our ultimate objective—the complete rehabilitation of the cleft palate cripple.

REFERENCES

1. Conway, Herbert: Combined use of the push-back and pharyngeal flap procedures in the management of complicated cases of cleft palate, Plast Reconstr Surg, 7:214-224, 1951.

2. Longacre, J. J., and DeStefano, G. A.: The role of the posterior pharyngeal flap in rehabilitation of the patient with cleft palate, Amer J Surg, 94:882-888 (Dec.) 1957.

3. Moran, Robert E.: The pharyngeal flap operation is a speech aid, Plast Reconstr Surg, 7:202-213, 1951.

4. Webster, Richard C., et al.: Pharyngeal flap, staphylorrhaphy and speech aid as means of avoiding maxillofacial growth abnormalities in patients with cleft palate, Amer J Surg, 96:820-822 (Dec.) 1958.

DISCUSSION

V. H. KAZANJIAN, M.D., Boston: During the last twenty-five years much improvement has taken place in the surgical treatment of cleft-palate patients. There is at present genuine interest, by the public as well as by the medical profession, toward physically handicapped patients.

There are still many surgical problems to be solved. An urgent one is to develop a safe surgical technique to join the two ends of the maxillary processes early enough to prevent distortion of the weak side of the palate. If early consolidation of the alveolar stumps becomes surgically possible, we may find that the extent of malocclusion of the teeth will be greatly diminished. Such a procedure would also be a stimulant to bone growth and proper development of the maxilla.

Dr. Stuteville has shown us an interesting case treated by reducing the protrusion of the lower jaw of the patient to harmonize with the retracted maxillae. This is a good procedure and should be used more often. It is particularly indicated in grossly retracted maxillae.

There are, however, many patients with moderate retraction of the upper teeth. A less drastic procedure may be utilized by extracting poorly developed upper incisors and replacing them with a properly made artificial denture which will bring the upper lid forward.

WILLIAM HUFFMAN, M.D., Iowa City: Dr. Stuteville and Dr. Kazanjian have left very little to be said, so I will say very little.

One thing that has shocked us in our part of the country is the discovery of how many of these people become discouraged and do not return for further treatment.

When our social service department started to look for these "lost patients," they found literally dozens of them throughout the state who could be persuaded to come back for further treatment. Many of them gained considerable rehabilitation. I think that unless one looks for these patients, he is likely to miss many of them who will not come into his office voluntarily for further rehabilitation.

STANLEY L. LANE, M.D., New York: It is always a pleasure to listen to both Dr. Stuteville and Dr. Kazanjian. We have used the term several times today—*rehabilitation*. Our present goal has been initial habilitation of these cleft palate and cleft lip cases, and we are now trying to prevent these deformities from occurring, as both Dr. Kazanjian and Dr. Stuteville mentioned, but there is one other point I would like to bring out.

We still see these deformities. Usually the cleft extends through the alveolar ridge, yet the same procedure is performed to close the palate whether the cleft extends through the alveolar ridge or not. We feel, therefore, that the deformity is more a function of the type of cleft giving the underdevelopment rather than the type or time of surgery on the palate.

I think most of the men who see a great many cleft palates have reached the stage where they try not to interfere too much with

the growth pattern; yet, cases occur that need the aid of the orthodontist at an early stage. No longer do we wait until the child is six years old or eight years old, but we begin when he is three or four years of age, and with special recurved wire techniques, we are able to move entire segments of the jaw.

Until recently it was claimed that segments of the jaw could not be moved. One could only move the teeth within the jaw, in mandibles, or maxillae, within the alveolar ridges, but it has been found, particularly when a cleft palate is present, that one can actually move segments of the jaw. The short collapsed segment can be moved and the cross bite corrected. If correction is started early enough, we do not have to see these marked underdevelopments known as the "adult cleft-palate cripple."

When the orthodontist asks for an opinion as to the treatment, I always tell him, "spread the arches; I don't care if you re-open the cleft. I can always close the cleft, but try to move the maxilla to obtain proper intermaxillary relationship. If you can get the segment in good position, I can always close the cleft palate."

GENERAL PRINCIPLES OF LATERAL OSTEOTOMY AND HUMP REMOVAL

WILLIAM K. WRIGHT, M.D.
HOUSTON, TEXAS

IN order to avoid visible external scars, some parts of the rhinoplasty operation must be done without visual guidance. The experienced rhinoplastic surgeon has learned to depend upon his sense of touch in manipulation of the nasal structures; however, in teaching, inability to demonstrate visibly the operative field is a great handicap.

This study was started as a teaching demonstration. The skin of the nose was removed from a cadaver, and rhinoplasty was then performed under direct vision, so that the technique and its effects could be observed and photographed. In this way the students could be given an actual view of the operation. I can recommend this exercise to anyone who is interested in teaching or in learning rhinoplasty. The student will, for the first time, really understand what is going on as it happens, and even the experienced operator may discover that his technique produces certain effects of which he was unaware.

Since skin removal allows every part of the surgical procedure and the involved area to be seen, studied, and photographed, this method appeared to offer an excellent way to compare the various methods of rhinoplasty. Some questions as to the validity of the findings could be asked, of course, in that the bones of a cadaver are probably more brittle than those in a living patient, and there is the additional factor of the demonstrator's possible unfamiliarity with some of the techniques. The anatomical relationships are not, however, altered in the cadaver, and a demonstrator can usually perform an unfamiliar technique fairly expertly when he can see what he is doing instead of having to operate by touch alone. Also, in bilateral procedures such as lateral osteotomy, one method can be used for one side and compared to another method used on the other side of the same specimen.

To get an assortment of nasal deformities (wide nose, high thin nose, large, small, and crooked humps, heavy and thin bone structures, et cetera), nine cadavers were selected from the Anatomy Departments of the Texas Medical Branch in Galveston, Baylor University Medical School in Houston, and the University of Texas Dental Branch in Houston.

REMOVAL OF HUMPS

Humps can be removed from the nose with saw, chisel, bone forceps, or rasp, but by whatever method may be used and whether it is done early or late in the operation, hump removal invariably leaves a wide flat dorsum which is open into the nasal cavity (figs. 1 and 2). The purpose of lateral osteotomy is to narrow and close the roof of the nose. It consists of a cut or fracture along the most lateral aspect of the bony pyramid, which is done with saw or chisel through an alar, buccal, or vestibular incision. Usually the cut begins at the

Presented in the *Special Program* of the Committee on Reconstructive Plastic Surgery: Otolaryngology at the Sixty-Fifth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 9-14, 1960, Chicago.

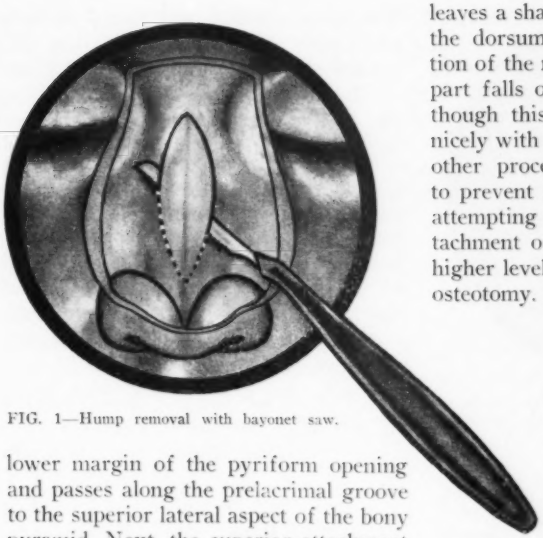


FIG. 1—Hump removal with bayonet saw.

lower margin of the pyriform opening and passes along the prelacrimal groove to the superior lateral aspect of the bony pyramid. Next, the superior attachment of the nasal bones is fractured, so that the nasal bones will fall in against the septum and close and narrow the open dorsum. A variety of techniques may be utilized to accomplish this effect:

1. The simplest technique consists of finger pressure applied against the thin lower portion of the nasal bones. This produces an angling fracture from the superior aspect of the lateral osteotomy cut to the open part of the roof, and leaves a sharp, jagged spur formation at the dorsum of the superior solid portion of the nasal bones, as the thin lower part falls over against the septum. Although this spur can be smoothed off nicely with a rasp (figs. 3, 4, 5), several other procedures have been developed to prevent formation of such a spur by attempting to fracture the superior attachment of the nasal bones at a much higher level. All of them employ medial osteotomy.

2. In medial osteotomy, a chisel is inserted against the septum at the dorsum of the nose and tapped gently until it reaches the superior extremity of the nasal pyramid. This can also be done with a saw. Finger pressure now produces a high fracture of the superior attachment of the nasal bones, in which no spur is left. After medial osteotomy, some surgeons prefer to *outfracture* the

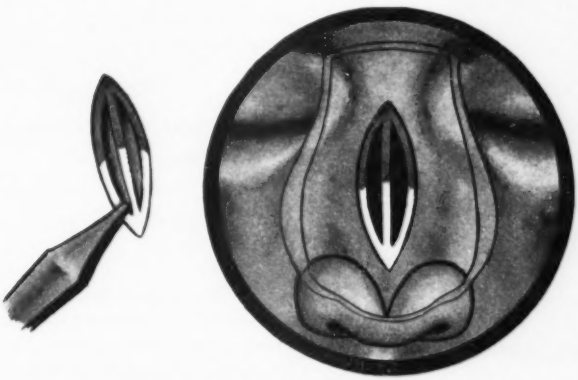


FIG. 2—Wide open dorsum following hump removal.

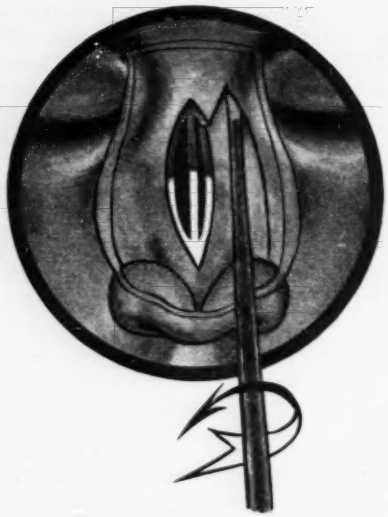


FIG. 3—Lateral osteotomy with chisel. Superior attachment fractured by wedging chisel inward.

superior attachment by wedging the chisel laterally. They believe that this results in an even, higher fracture. The usual *infracture* is then effected with the fingers. In still another variation, the superior attachment of the nasal bones is disengaged without fractures by the use of medial and lateral osteotomies, with subsequent employment of a curved chisel to connect the medial and the lateral cuts. This technique produces the highest fracture and least fragmentation.

3. After medial osteotomy, *wedges of bone* can be removed from the medial attachment of the nasal bones with a rongeur or by gouges. This procedure supposedly allows the nasal bone to fall farther inward, which, theoretically, narrows the dorsum of the nose as well as closes it.

All of these methods were observed in the nine cadaver dissections. The usual procedure was to try one method on one side and another type of osteotomy on the other side. For comparison these exercises were carefully recorded by motion pictures and still pictures. Such diagrams as are included in this paper are not artists' interpretations of what happened, but are tracings of the actual fracture lines made by projection of the pictures onto paper.

CONCLUSIONS

1. Saw-cuts produced less comminution than chisel cuts. This seemed more of a disadvantage than an advantage, especially in instances of very convex nasal bones.

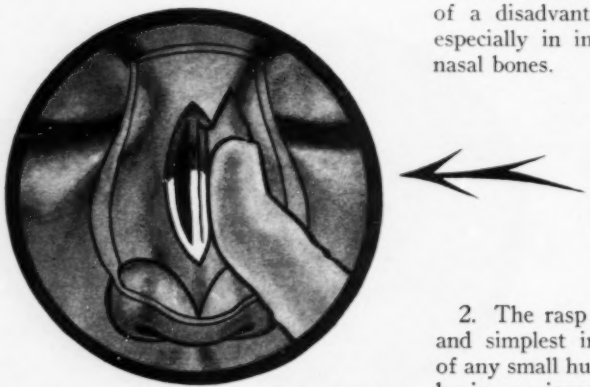


FIG. 4—Thin portion of nasal bone pressed against septum to narrow and close dorsum.

2. The rasp seemed to be the safest and simplest instrument for reduction of any small hump, especially when used by inexperienced operators. The skilled operator, of course, usually did best

with the instrument to which he was accustomed. In general, bone forceps and chisels were found to cause more fragmentation than the saw.

3. The best and most satisfactory way to straighten the rigid convex lines of the open roof after hump removal was the Becker method.[1] Lateral osteotomy was done, then finger pressure was applied over the thin portion of the nasal bones (figs. 3 and 4). This pressure produced a low fracture that angled downward from the upper limit of the osteotomy to the superior aspect of the open roof, and collapsed the thin portion of the bony pyramid against the septum. The sharp spur thus left on the lower medial part of the superior solid portion of the nasal bones could, since it was fixed, be rasped smooth (fig. 5).

FIG. 5—Sharp fracture spine on superior solid fragment rasped smooth.

4. This angled fracture from the superior aspect of the lateral osteotomy to the open part of the roof of the dorsum was always a factor in any method which produced closure of the open roof and narrowing of the dorsum. In many cases it was not actually intended as part of the procedure, and the operator was unaware of its presence or its importance until he reviewed the pictures of the operation.

5. Medial osteotomy and high fracture of the superior attachment of the nasal bones were not found desirable in any of the nine cases studied. When this method was used, there were three possible results:

a. Medial osteotomy was done, but high fracture of the nasal bones did not ensue; there was, instead, an unintended angling fracture to the open dorsum. In such a case, medial osteotomy needlessly comminuted the solid subglabellar area. This happened in two cases.

b. With medial osteotomy and high fracture of the nasal bones, there was also an associated angling fracture to the open dorsum, which was operant in closure of the dorsum. This occurred in two cases and was more likely to occur when the outfracture preceded infracture.

c. Medial osteotomy and high fracture of the superior attachment of the nasal bone were achieved without fragmentation or comminution of the bones. This occurred in cases 1, 3, 4 and 9, and apparently was most likely when curved chisels rather than finger pressure were used in fracturing the superior attachment of the nasal bones. When the nasal bones remained thus in one piece without fragmentation, a seesaw or rocker

FIG. 6—Right lateral osteotomy with saw.

FIG. 7—Medial osteotomy into thick portion of nasal bones with a chisel.

effect was produced, with the fulcrum at the natural line between the open roof and the upper extent of the lateral osteotomy (figs. 6, 7, 8, 9). The longer the medial osteotomy, the longer the arm-of-the-rocker effect. In these cases, when the dorsum was pinched together, the medial osteotomies rocked outward. When the medial osteotomies were pressed together, the dorsum reopened. It is my impression that the healing of this rocker effect might be the cause of secondary widening of noses after rhinoplasty. At least it would seem plausible on an anatomic basis.

6. In infracture of the nasal bones after lateral osteotomy and without medial osteotomy, the bones were found to have little tendency to spring back into the original position or to rewiden. It should be pointed out, however, that it was found to be extremely important in this method to make the pressure for the infracture over the lower thin portion and not over the upper heavier part of the nasal bones. With this method the bones remain collapsed against the septum. In living patients, as a matter of fact, the operator must carefully place packing between the septum and the inferior portion of the lateral osteotomy, lest the nasal bones heal too close to the septum and produce a narrowing of the airway. The bones heal wherever they are placed. In the comparative study, this method was used in cases 1, 2, 3, 5, and 9, and, in each instance, produced better narrowing and better closure than the method employed on the opposite side.

7. Removal of medial wedges from the solid subglabellar area was only partially successful in narrowing the nose and closing the dorsum. It produced a great deal of comminution and sometimes loss of continuity of the area, and was rather difficult to carry out even under direct vision. This type of proce-

dure was used in cases 1, 2, 5 and 8. Besides the difficulty of the method and the comminution which it produced, impingement of the fractured nasal bones on their superior attachments was a limiting factor in narrowing the nose.

When medial pressure was removed from the bones, they tended to spring apart, thus creating a space where the wedges had been removed.

FIG. 8—High fracture of superior attachment of nasal bone produces seesaw rocker with fulcrum where fracture of superior attachment should ideally be.

SUMMARY

A teaching method is described which includes selection of cadavers with nasal deformities, dissection of the skin from the noses, and performance of rhinoplasties on exposed structural elements, which enables a critical comparison of the existing procedures for correction of nasal deformities. In this paper such a comparative study has been made of the current techniques of hump removal and osteotomy. The general conclusions are that all forms of hump removal leave a wide, flat, open dorsum, and that medial osteotomy with or without outfracture or removal of medial wedges is not the method of choice in correction of this flat wide dorsum. The simplest and best procedure was found to be that of lateral osteotomy with finger-pressure fracture over the lower thin portions of the nasal bones from the upper limit of the lateral osteotomy to the open part of the dorsum. After this is done, the jagged upper fracture line is smoothed with a rasp. It may be suggested that these same methods of study or similar ones could be applied to other puzzling problems associated with nasal plastics, particularly the operative handling of lower lateral cartilages.

FIG. 9—Dorsum closes, but closure of superior arm of rocker by finger pressure or in healing reopens dorsum.

REFERENCE

1. Becker, Oscar J.: Principles of Otolaryngologic Plastic Surgery, ed. 2, Rochester, Minn., American Academy of Ophthalmology and Otolaryngology, 1958, pp. 48 and 49.

DISCUSSION

OSCAR BECKER, M.D., Chicago: Dr. Wright has clearly and dramatically presented the principles of lateral osteotomy. He has given the technique the eponym, "the Becker method," which is certainly flattering. I have been using this method for over ten years and described it in the first issue of the Manual on Plastic Surgery published by the Academy in 1952. [Slide] Essentially, it is an infracturing technique with the 5 mm. osteotome and a rotation of the osteotome inwardly to break the bone close to the radix nasi. Any excess of bone remaining as a shelf above the point of infracture is removed with a rasp.

I no longer remove wedges between the nasal bones, medial osteotomy and outfracturing because I found the nasal bones too loose and subject to subsequent widening. Frequently the bones would drop below the level of the septum, and tight intranasal packing was necessary to elevate them and to maintain their position. In some patients, scar contracture would again depress the nasal bones after a few months.

Wright's clear demonstration of the "rocker" is certainly an important reason for the subsequent widening of the nose, and definitely proves that medial osteotomy and outfracture should be discontinued as a routine procedure in all cases of rhinoplasty. However, I feel that the "rocker" is broken when finger pressure is exerted on the bridge to completely infract the bones.

If a large hump is removed, it will include detachment of the upper lateral cartilages from the septum. After outfracture, the removal of wedges or medial osteotomy, only the septum remains as a stabilizing element for the dorsum. If a submucous resection of the septum is then performed, the dorsum may become depressed, because the last remaining stabilizing element of the dorsum has been removed. This will not happen in every case, i. e., if only a small section of cartilage or bone is removed, but happens frequently enough to make this a dangerous procedure. However, the depression of the nose will always occur if the septum is cut through to the dorsum to correct a twisted nose. Evidently this occurred frequently enough to warrant some men to issue the caveat that a septal operation and rhinoplasty should not be done together. But the septal and plastic procedure should be done together and can be done together if the bones are infractured by the method demonstrated by Wright. If some attachment of the upper lateral cartilages to the septum is left remaining, it will further act as a stabilizing factor. The upper lateral cartilages should not be completely detached from the septum, as is frequently done as a routine step in the operative procedure practiced by many who do the medial osteotomy.

Wright is to be congratulated for his lucid and enlightening contribution to rhinoplasty.

MICHAEL LEWIN, M.D., New York: Dr. Wright is to be congratulated on the interesting study which he has just shown.

One rarely sees a rhinoplastic technique tested on anatomical specimens with the conclusions to be used in clinical application.

If my understanding of the film is correct, Dr. Wright does the "medial osteotomy" after the lateral osteotomy. It seems to me that it is simpler to do the "medial osteotomy," or the removal of the subglabellar web, immediately following the sawing off of the dorsal hump. This step can be performed under better control as long as the stability of the nasal bones has not been weakened by the lateral osteotomy of the frontal processes of the maxilla.

Many surgeons prefer to do the medial osteotomy routinely. However, it is not essential in every case of rhinoplasty. Frequently the nasal hump is limited to the distal two thirds of the dorsum and the "open roof" is created only in this area, while the subglabellar portion of the nasal pyramid remains thin.

If the sawed-off dorsal fragment extends to the glabella, the entire dorsum forms a plateau and requires narrowing. The "open roof," however, does not include the proximal portion of the dorsum, since a bony web remains between the nasal bones. By one method or another this web must be removed so that the nasal bones can be mobilized freely and brought together.

It is a matter of individual preference whether this is accomplished with osteotomes, chisels, saws, or with specially devised instruments.

ALBERT P. SELTZER, M.D., Philadelphia: I have found that the chisel is of no value in my hands. I have used the chisel many times and I was disappointed. Perhaps I am not well trained in the use of the chisel. When you undermine the periosteum in doing the lateral osteotomy, in order to keep it well up to the dorsum you insert the chisel, bunch the periosteum underneath the bone, and hope that it will iron out—but frequently it doesn't. This bunching of the subperiosteal tissue un-

derneath the bone, in my opinion, is poor and dangerous. If you cut through with the chisel, the bone will fall down—and your heart falls with it because you see that the nasal bone has disappeared. You should not be alarmed about it. You can pack some one-half inch nasal gauze underneath it and lift it up. It will come back up to the surface again. Let it remain that way.

I feel that in using the right angle saw with a to-and-fro motion, I can cut completely through until I come to the membrane of the subperiosteal tissue of the nasal bone, so that I have a free fragment. If you only partially cut through, as Dr. Converse mentioned, you have a fracture of the nasal bones and you are very happy and contented. You brag about how beautiful the nose is and how narrow it appears, only to find out two or three weeks later that the green-stick fracture which you created begins to revert to its original position, with perhaps a subsequent irregularity of the nose.

Aufricht, for whom I have a great regard and respect, many years ago invited me over to see him do the nasal fracture. He is, in my opinion, the originator of this technique, which I think is excellent, and I continue to use it until this day.

(Illustrating) When you remove the hump, you have a nice equal plane. It is not sufficient to push the bones together because a gap will open. It is well to reduce the septum down further so that this bone will overlap, and so that osteogenesis will take place at this point. Aufricht used his chisel right up to the dorsum, to the nasion, and then outfractured the nasal bones. This also makes the lateral osteotomy more flexible for replacement to the central position.

He now follows up with a pair of glasses; an idea which I still use today. I place a pair of glasses with the flanges on the bridge of the nose and have the patient wear them for a period of between four and five weeks. This slight constant pressure on the nasal bones helps to narrow the nose further. I tell the patient ahead of time: Remember, there will be an indentation. That is a good omen that your nose will become narrow.

Thank you kindly for the privilege of discussing this excellent paper.

WILLIAM HUFFMAN, M.D., Iowa City: There has to be one in every crowd, I guess. You have spoken with fear of the possibility that the bone involved in lateral osteotomy will come loose and fall into the nose. In an operation some ten years ago we accidentally tore this bone completely free so that it laid against the septum. We were right frightened but we thought we should make the two sides of the nose match, so we tore it loose on the other side. On the operating table, the nose looked sharp enough that one could almost shave with it, but it certainly didn't stay too sharp in the late postoperative period. We did that type of fracture more frequently and intentionally. Now in practically every case we don't like the osteotomy until we can put our thumb tip in the osteotomy cut and shove the frontal process against the septum on both sides. If the bone has ever fallen down into the nose, we have not noticed it.

Dr. Sicher mentioned his fifty years study of bone grafts. I am going to ask someone who has had fifty years of experience in plastic surgery to come up here and give us a few words of wisdom on this. Will you come, Dr. Kazanjian? What do you think about all this discussion?

V. H. KAZANJIAN, M.D., Boston: The size and the contour of the nose are primarily determined by the underlying skeletal framework, and to a lesser degree by the skin and subcutaneous tissues.

Surgical procedures for correction of deformities of the nose are mainly directed toward modification of the bony and cartilaginous skeleton. This may be accomplished in a variety of ways, depending upon the surgeon's preference. One surgeon may effectively remove a nasal hump with a saw, another with an osteotome, and another with a rongeur. The nasal bones may be fractured with an osteotome, with a saw, or with a combination of both.

More important, however, than the choice of instrument is the fact that the surgeon should study each individual case carefully to make an accurate estimate of the factors responsible for the deformity, and utilize the procedures and instruments which are most effective in his hands.

Symposium: Exophthalmos

* * *

I

INTRODUCTION

EDMUND B. SPAETH, M.D.
PHILADELPHIA, PENNSYLVANIA

THE basic subject of exophthalmos is so closely related to internal medicine and neurosurgical problems, to primary nasoaccessory sinus disease, to diseases of the blood and lymphatic systems, to primary and metastatic malignant tumors, and to traumatisms that ophthalmology can and should tie these situations together. Exophthalmos, if unilateral, is quite a different pathological problem or disease from that present when it is bilateral. In 1940, a member of this panel presented twelve different pathologic anatomical conditions resulting in unilateral exophthalmos; seven different traumatic possibilities; fourteen different inflammatory diseases, and six different types of unilateral exophthalmos that had originated with diseases of the blood and lymphatic systems. There were over twenty different types of malignant tumors related to unilateral exophthalmos which had appeared in the literature or were within that man's own experience.

Bilateral exophthalmos is more frequently an ocular manifestation of some type of general systemic disease. True, it has traumatic, congenital, and inflammatory causes; but by far the greater number of cases of bilateral exophthalmos are medical ophthalmological problems.

The approach to this problem has been divided into four subdivisions, each to be discussed by a different ophthalmologist.

Dr. John W. Henderson of Ann Arbor will discuss the differential diagnosis of exophthalmos. This problem is probably the most vexing of the four which will be discussed here. An example of the intricacies of this problem is the following four cases which appeared within one month. One of them was a case of unilateral exophthalmos in a young male patient who was admitted to a hospital in a large city with unilateral exophthalmos and a basal metabolic rate of +30. The resident discovered an enlarged gland in the axillary space which biopsy revealed to be a lymphoblastoma. The second case of unilateral exophthalmos occurred in a four-year-old child. Because it was unilateral and in a very young child, it was diagnosed to be a sarcoma. The biopsy by the first pathologist suggested that it was schwannoma. However, a subsequent diagnosis made upon recurrence was that of rhabdomyosarcoma. The child died from extension of the neoplasm. The third patient with unilateral exophthalmos was a 52-year-old woman who had had an orbitotomy in another country. She had been told that no pathologic changes were found in the orbit. The second surgeon found a meningioma of the optic nerve. The fourth patient exhibited

Presented in the *Special Program* arranged by the Committee on Reconstructive Plastic Surgery: Ophthalmology at the Sixty-Fifth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 9-14, 1960, Chicago.

steady progressive unilateral exophthalmos, with a uniform increase in density of the involved orbit revealed by laminagraphy. A lateral orbitotomy, done with a temporary orbital margin resection, failed to show an intraorbital space-taking lesion. At the time of this writing the pathologic condition is receding rapidly under ACTH intravenous therapy.

Dr. Robert M. Day of New York will discuss the medical treatment of exophthalmos. Medical treatment includes, of necessity, the treatment of polyglandular disease, of which the ophthalmic aspect is exophthalmos.

Dr. Howard A. Naquin of Baltimore will cover surgical therapy. This aspect of treatment of the basic condition is one of the outstanding reasons for a discussion of exophthalmos by ophthalmologists. It is an ophthalmological symptom-complex in which the diagnosis and prescribed treatment frequently must be the ophthalmologist's responsibility.

Dr. John McLean of New York will discuss the secondary situations which may arise. His task is to bridge the gaps which exist between the first three divisions.

II

DIFFERENTIAL DIAGNOSIS

JOHN WOODWORTH HENDERSON, M.D.
ANN ARBOR, MICHIGAN

THE analysis of a case of exophthalmos may be attempted by a number of different methods, all of which are of value. A classification by basic etiologic factors such as that of Benedict[3] serves as an excellent basis for reasoning, and includes congenital, vascular, neoplastic, inflammatory, and endocrine groups. In addition, a traumatic group should be added. For completeness, it is unlikely that the detailed outline of the etiology of displacement of the globe presented by Duke-Elder[7] can be improved upon. He first differentiates an apparent from a real proptosis, and then organizes the etiologic conditions on the basis of whether the proptosis is acute, intermittent, pulsatile or constant, unilateral or bilateral, congenital or present in infancy. A classification by the pathologic findings, such as presented by Reese,[12] is of further value in analysis of a case of orbital disease. Pfeiffer[11] has presented a classification according to roentgenologic findings which also is of considerable help in analysis. The approach given by Iliff[9] in differential diagnosis of orbital tumors is helpful. He considers findings in the following order and divisions: (1) the patient: age, sex incidence, general health; (2) the tumor: rate of growth, consistency and invasiveness, type of exophthalmos; (3) the patient-tumor relationship; (4) roentgenologic findings; and (5) biopsy results. A useful concept in reasoning through a given case is that presented by Benedict in his De Schweinitz Lecture[2] and expanded in his Jackson Memorial Lecture,[3] wherein the orbit is di-

From the Department of Ophthalmology, University of Michigan.

vided into anatomic zones and divisions with causative agents and resultant findings directly related. Bushe[5] has recently analyzed unilateral exophthalmos by a classification according to the external manifestations; i.e., whether the findings are inflammatory, bland, nonpulsating, or pulsating.

A further, and I believe more realistic, method of approaching exophthalmos is to attempt the differential diagnosis by means of a series of diagnostic questions such as that presented by Adler[1] in *Gifford's Textbook of Ophthalmology*. This is the method of choice, since it demonstrates the reasoning process necessary in analyzing a given patient rather than groping in a profound and encyclopedic list of diagnostic possibilities.

Such a list of diagnostic questions might be listed as follows, but not necessarily in this order:

1. Is the exophthalmos unilateral or bilateral?
2. What is age of onset, type of onset, history of progress?
3. Is the exophthalmos inflammatory or noninflammatory?
4. What is the direction of the proptosis?
5. Is there limitation of ocular rotation?
6. What does palpation of the orbit indicate?
7. Is there visual involvement?
8. What is seen on ophthalmoscopic examination?
9. What are the changes visible on roentgenologic examination?
10. What are the general physical findings?
11. What do the laboratory studies indicate?
12. Is there indication for a therapeutic trial of radiation?
13. Is there need for diagnostic biopsy?
14. Is there indication for a period of continued observation?

Let us briefly discuss each of these questions in the limited time available.

1. *Is the exophthalmos unilateral or bilateral?*

In general, it may be stated that the majority of local lesions are likely to be unilateral. General diseases which cause exophthalmos are usually bilateral: among these are the exophthalmos of thyroid disease, the xanthomatoses, and the blood dyscrasias. It is obvious that exceptions exist; the so-called thyrotropic variety of exophthalmos often appears in one orbit first, later becoming bilateral, but the accompanying orbital signs suggest the proper diagnosis. However, it has been pointed out by Drescher and Benedict[6] that significant prominence is present in the second eye in so-called unilateral cases when the readings are compared to measurements of a normal series. Other exceptions to the rule might be the spread to bilateral orbital involvement of cavernous sinus thrombosis, the occasional occurrence of pseudotumor in both orbits, and bilateral lymphosarcoma in some cases.

2. *What is the age of onset? type of onset? history of progress?*

Where proptosis is present in an infant, various congenital deformities involving the orbit may be present, among them the craniofacial dysostoses and other developmental abnormalities. The age factor in the incidence of orbital tu-

mors has been pointed out by Ingalls.[10] Iliff[9] states that congenital benign tumors are twice as common as the malignant type in children. Angiomas are the most frequent benign tumor, followed in order by dermoids, neurofibromas and gliomas, whereas the sarcomas are the major malignant tumors. He further notes that pseudotumors, meningiomas and carcinomas are common adult tumors and are rarely seen in children. The type of onset present may be related to a history of trauma, in which case the appearance of proptosis may have been abrupt, such as that occurring in carotid-cavernous fistula or orbital inflammation following a penetrating injury. Sudden appearance of prominence may follow an orbital hemorrhage, either spontaneous or due to trauma. The history of progress of the exophthalmos may give considerable help in diagnosis. Slow growth of orbital tumors is characteristic, with the exception of sarcomas in children, which are likely to be accompanied by severe orbital pain. However, Benedict[3] notes that the slow changes present in vascular disease of the orbit may simulate tumor. The intermittent character of venous aneurysms of the orbit with sudden onset, sudden remission, and gradually increasing severity are noted by him as well. When exophthalmos shows rapid change it is more likely to be inflammatory in origin. When progress has not taken place in a case of apparent unilateral exophthalmos, one must ask whether there is truly an exophthalmos present. Reese[12] has pointed out the possibility of simulation by unilateral high myopia, asymmetry of the bony orbits, early mild hyperthyroidism with unilateral lid retraction, or relaxation of one or more extraocular muscles due to paralysis or to muscle surgery. It is essential that a direct measurement of exophthalmos by means of instruments be made at each examination in order that true changes may be recorded.

3. *Is the exophthalmos inflammatory or noninflammatory?*

The signs and symptoms of acute inflammation leave no doubt as to etiology in a typical case. These may include a sudden onset, rapid progress, increasing proptosis with early involvement of ocular motion, together with pain, tenderness, chemosis and congestion of the conjunctiva, and sometimes a palpable fluctuating mass. Fever, leukocytosis and prostration may complete the picture. Benedict[3] has pointed out that the acute inflammatory lesions of the orbit are produced mainly by disease of the nasal accessory sinuses, especially the ethmoids in children, the frontal and maxillary sinuses in adults. In addition, primary acute inflammation may occur in association with various systemic infections. The appearance of acute inflammation may be simulated by carotid-cavernous fistula, and by the severe orbital signs of endocrine exophthalmos, but the absence of systemic reaction is soon evident.

When chronic inflammatory disease of the orbit is present, the diagnosis may give more difficulty. Reese[12] has pointed out the frequency of chronic orbital granuloma or pseudotumor as a cause of unilateral exophthalmos. In differentiating pseudotumor from a primary orbital neoplasm, he lists the following helpful points: (1) primary neoplasms occur at an early age, while the average age of patients with chronic granuloma is 45 years; (2) the onset of granuloma is likely to be more rapid; (3) there may be involvement of the second eye from four to nine months after the first; (4) roentgenographic changes are usually lacking in the orbital bones; and (5) there is pain and edema of the lids in one half of the cases of pseudotumor. From the description of the pathologic changes found in certain cases of orbital pseudotumor, it seems likely that in the past there has been at least a partial

overlap between this condition and the progressive exophthalmos of thyroid disease.

Finally, it should be noted that an inflammatory process in the orbit may sometimes occur as the result of sudden necrosis in an orbital tumor which may be located toward the apex and not readily reached by biopsy.

up and out, or up and in, while lateral displacement may be the result of a mucocele or tumor arising from the ethmoid or sphenoid sinuses. Here the orbital schema of Benedict[3] is of great value in evaluating a patient (fig. 1). He notes that lesions of the middle division in the posterior zone are likely to produce direct proptosis, as for example, a meningioma entering the orbit from the

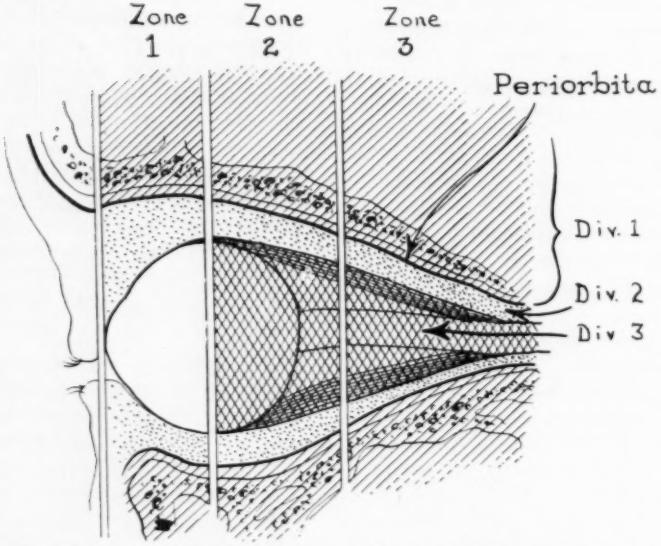


FIG. 1—A diagram of the orbit indicating an arbitrary division into three zones and their anatomic relation to the anatomic divisions. (Reproduced from Benedict.[3])

4. *What is the direction of the proptosis?*

The direction of displacement of the globe in the presence of orbital space-occupying lesions often gives a clue to the location of the difficulty. Origin of a lesion from the lacrimal gland or frontal sinus may displace the eye down and in; disease originating in the maxillary sinus may result in the eye being pushed

superior orbital fissure. On the other hand, tumors and space-occupying lesions within the muscle cone (division 3) are in zones 2 and 3 and produce proptosis without lateral displacement, wrinkling of the retina, choked disc, visual loss, and scotomas. These are more likely to be neurofibroma, glioma, or meningioma. Benedict points out that the onset of proptosis does not necessarily indicate the true time of onset,

since the orbital tissues are capable of adapting to a slowly growing tumor, and consequently the direction of displacement of the eyeball may not necessarily indicate the exact situation of the tumor. He further emphasizes that fluctuation in proptosis may be indicative of a vascular tumor, such as a hemangioma, which undergoes intermittent filling and thrombosis, and at times even a bluish discoloration of the lids may appear from the seepage of broken down blood products.

5. *Is there limitation of ocular rotation?*

Interference with ocular movement may occur by direct involvement of the extraocular muscles as in endocrine exophthalmos, or by interference with the nerve supply, often near the orbital apex. Certain tumors such as meningiomas may cause early interference with the extraocular muscles, especially where the inner end of the sphenoid ridge is involved. Ingalls[10] points out that fleeting proptosis may be a common sign in orbital neoplasms, and suggests that the routine muscle examination should include the use of a diplopia chart, which can be followed at intervals to show the progress of the disease, and which may aid in pointing to the location of the lesion. The lack of diplopia in patients with very slow-growing orbital tumors is often surprising in view of considerable displacement of the globe, but it should be remembered that adaptation of this sort can be the result of a strong fusion faculty.

6. *What does palpation of the orbit indicate?*

The importance of careful palpation of the orbit cannot be overemphasized. Reese[12] points out that in most instances a mass is palpable in the orbit but sometimes may be difficult to locate. For successful palpation he recommends, in some cases, general anesthesia as well as the use of a glass rod in the fornices. Duke-Elder[7] suggests cocainizing the cul-de-sacs in order to use the little finger for palpation. Adler[1] recommends that exploration with the finger be carried around the orbital rim, and that the consistency of the mass palpated be assessed. Where fluctuation is present, one may suspect a mucocele or meningocele.

Palpation of the swelling of the lids may be of help in differentiating thyroid exophthalmos; here the swelling is often smooth and uniform. In contrast, Benedict[3] points out the irregular palpable masses in the lids in Mikulicz's disease.

The limitation of retropulsion of the globe may also be estimated by palpation, as well as limitation of displacement of the globe in the direction of a suspected lesion. The estimation of intraorbital pressure has received much interest, but the diagnostic value of orbital tonometry leaves much to be desired.

Finally, the evidence of pulsation or a palpable thrill may lead to the diagnosis of a vascular anomaly or disease such as carotid-cavernous fistula.

7. *Is there visual involvement?*

Decreased vision in the presence of exophthalmos may be due to direct pressure on the optic nerve, pressure on the globe in the region of the macula, or astigmatism produced by direct compression of the eyeball. An orbital mass indenting the sclera may produce hyperopia, or a decrease in myopia. In rarer instances, a similar refractive shift may result only from orbital congestion such as that occurring with an early sphenoid wing meningioma. Visual field findings may be characteristic in those instances where intracranial tumors are affecting the optic nerve, chiasm or the orbital apex. The progressive visual loss of the

optic nerve glioma may be so rapid in an infant that the earliest symptom is esotropia. The visual involvement associated with thyroid exophthalmos may be due to extreme orbital congestion, in which case disc edema is present and orbital decompression indicated, or may be the nonspecific optic neuritis of self limited nature reported by Henderson.[8]

8. *What is seen on ophthalmoscopic examination?*

The finding of optic atrophy of the nerve head may indicate some direct pressure on the nerve. Congestion, or even choking of the disc, results from interference with the orbital venous drainage, and in some instances the choked disc is an indication of increased intracranial pressure. It should be remembered that the most frequent cause of the Foster Kennedy syndrome is a sphenoid wing meningioma. Indentation of the globe from behind may induce tension lines or striations of the retina, while an expanding lesion around the optic nerve may produce venous stasis in the retina, and even an occlusion of the central retinal vein or of one of its branches.

9. *What are the changes visible on roentgenologic examination?*

Adler[1] notes that roentgenologic examination is the most valuable asset in the differential diagnosis of exophthalmos. He believes that roentgenograms should be taken in every case in which there is doubt as to the diagnosis. It was noted by Pfeiffer[11] that such examination was of diagnostic aid in 70 per cent of 200 consecutive cases of exophthalmos, and in 84 patients the findings were indicative or diagnostic of the condition. In an additional 20 per cent the findings, considered in the light of clinical and laboratory evidence, were suggestive of the diagnosis. The positive findings were more frequent in mucocele from a paranasal sinus, meningioma, craniostenosis, and hemangioma. In a more recent series of 138 cases studied by Bullock and Reeves,[4] the roentgen appearance was practically diagnostic in nearly one third of the cases, and in an additional third the diagnosis could be made with reasonable certainty when the complete clinical information was available. The most perfect diagnostic findings were obtained in mucoceles, sphenoid meningiomas, malignancies of the paranasal sinuses, and optic gliomas. Periorbital cellulitis and retrobulbar abscess were reported only second in frequency to frontoethmoidal mucocele, and the findings consisted of soft-tissue swelling with associated sinus changes from the causative sinusitis.

Benedict[3] points out that calcification may be seen in certain thrombosed, fibrous aneurysms of the orbit, and suggests that when roentgenographic findings are indefinite, careful orbital air injection in these cases of the middle orbital zone will frequently reveal the presence of a soft tissue tumor. Three special techniques in roentgenologic examinations are listed by Duke-Elder[7]: (1) orbitography—the use of air injection, (2) angiography—which may be helpful in the visualization of vascular lesions as well as of intracranial disease encroaching on the orbit, and (3) special radiography of the optic foramen—an aid in the diagnosis of optic nerve glioma.

10. *What are the general physical findings?*

Although there may be no additional clues gained from complete physical examination in many cases of exophthalmos, certain findings may be of definite help. The general findings of thyroid disease, including the occurrence of pretibial myxedema in one fourth of the

progressive exophthalmos cases, should be cited. Evidence of the blood dyscrasias may be present in some patients.

Adler[1] notes that the lymphatic leukemias are particularly apt to produce deposits in the orbits, while exophthalmos is rare in those of the myelogenous series. The evidence of a primary neoplasm elsewhere with secondary metastasis to the orbit may be noted. Benedict[3] states that most of the metastatic tumors in his series were carcinomas from the stomach, breast, and intestinal canal. All were highly malignant and seen late in the course of the disease as a part of a general metastasis. Consequently, the physical findings of advanced neoplasia would be most evident. In one case of neuroblastoma which metastasized to the orbit, seen by the author, the abdominal mass was not palpable on physical examination until the administration of a brief general anesthesia for ocular biopsy purposes allowed adequate abdominal relaxation. General physical findings of the xanthomatoses may be of help in some cases, and systemic evidence of neurofibromatosis may accompany orbital defects, to name a few others. Angiomas of the orbit may have associated angiomas elsewhere. In two patients of his series, Iliff[9] found secondary angiomas in the roof of the mouth.

11. *What do the laboratory studies indicate?*

Blood studies should be complete in the evaluation of any patient with undiagnosed exophthalmos. The evidence of blood dyscrasias, of systemic infection, or of advanced neoplastic disease may be found. Unfortunately, the usual orbital lymphoblastoma does not show signs in the peripheral blood except in the advanced stages of dissemination. The usefulness of radio-iodine uptake studies singly or in sequence, as in the Werner test, will uncover obscure cases of thyroid exophthalmos. Altered blood protein levels and albumin-globulin ratio may indicate sarcoidosis. Any complete work-up of a patient with proptosis should include urinalysis. Special studies may be indicated in cases of obscure inflammatory disease, or in instances of suspected intracranial lesion. Included might be lumbar puncture with estimation of the pressure and of the protein content.

12. *Is there indication for a therapeutic trial of radiation?*

In his Jackson Memorial Lecture, Benedict[3] stated that in a case in which the findings are indefinite and there is no immediate danger of visual loss and no pain or other serious symptoms, he would strongly urge the application of roentgen rays as a diagnostic and therapeutic measure. Such a point of view has been held in our department at the University of Michigan for many years, stemming from a case of unnecessary orbital exenteration based on frozen section, in which the early report of sarcoma was superseded the next day by a diagnosis of lymphoblastoma. It is our practice in cases of unilateral exophthalmos in which all findings are negative, to use such radiation therapy as a diagnostic measure short of orbital exploration. In orbital involvement by the lymphoma series, the results can be spectacular. Iliff[9] states that a short course of roentgen therapy may be a valuable diagnostic aid in tumors of children: angiomas are quite sensitive to irradiation, while dermoids, neurofibromas and gliomas are insensitive. Six of the nine orbital angiomas in his series responded dramatically to roentgen therapy.

13. *Is there need for diagnostic biopsy?*

The use of routine biopsy in orbital lesions is deprecated by Benedict.[3] He believes that if a specimen for biopsy

must be obtained, the surgeon should be prepared to complete any surgical operation necessary as indicated by the findings or prompted by the complications resulting. Reese[12] states that no surgery should be attempted unless a mass is palpable somewhere in the orbit. No orbit should be explored unless a lesion has manifested itself as a mass to serve as an objective for the surgical approach. The only exception is a case in which a deep nonpalpable orbital lesion is jeopardizing the function of the eye either directly or by its effect on the optic nerve. Although needle biopsy is a dangerous procedure decried by Benedict, Reese feels that in some instances, aspiration biopsy of a definite lesion may be of value in the differential diagnosis.

14. *Is there indication for a period of continued observation?*

As Benedict[3] notes, in the early stages of certain diseases of the orbit, the outstanding and sometimes the first and only signs of disease are exophthalmos and some degree of swelling of the lids. The character of onset, duration of symptoms, and the course of development of the orbital changes may reveal nothing diagnostic and one may be forced to await further developments. It is seldom that a disease of the orbit will require emergency treatment. An interval of watchful waiting is almost always justified in any case in which the diagnosis is in doubt, and one may defer surgical intervention until more satisfactory proof of the diagnosis is available, or until imminent damage to visual function seems likely. Reese[12] believes that temporizing is in order when the cause cannot be determined, and that diagnostic efforts should be continued at regular intervals in order to determine the cause.

Many further examples of specific types of exophthalmos could be presented but time does not allow. However, if this approach of diagnostic reasoning and considered thought can be applied to your next case of exophthalmos, the purposes of this symposium will have been met.

REFERENCES

1. Adler, Francis H.: Gifford's Textbook of Ophthalmology, ed. 6, Philadelphia, W. B. Saunders Co, 1957.
2. Benedict, William L.: Surgical treatment of tumors and cysts of the orbit, Amer J Ophthal, 32:763-773 (June) 1949.
3. ———: Diseases of the orbit, Trans Amer Acad Ophthal Otolaryng, 54:26-36 (Sept.-Oct.) 1949.
4. Bullock, Leon J., and Reeves, R. J.: Unilateral exophthalmos; Roentgenographic aspects, Amer J Roentgenol, 82:290-299 (Aug.) 1959.
5. Bushe, K. A.: Zur Differentialdiagnose des einseitigen Exophthalmus, Klin Mbl Augenheilk, 135:465-486, 1959.
6. Drescher, Edward P., and Benedict, William L.: Asymmetric exophthalmos, Arch Ophthal, 44:109-128 (July) 1950.
7. Duke-Elder, Sir Stewart: Textbook of Ophthalmology, ed. 1, St. Louis, C. V. Mosby Co., 1952, vol. V, pp. 5625-5633.
8. Henderson, John Warren: Optic neuropathy of Graves's disease, Trans Amer Ophthal Soc, 55:353-365, 1957.
9. Iliff, Charles E.: Tumors of the orbit, Trans Amer Ophthal Soc, 55:505-541, 1957.
10. Ingalls, Raymond G.: Tumors of the Orbit and Allied Pseudo Tumors; An Analysis of 216 Case Histories, Springfield, Ill., Charles C Thomas, 1953.
11. Pfeiffer, Raymond L.: Roentgenography of exophthalmos with notes on the roentgen ray in ophthalmology, Amer J Ophthal, 26:724-741 (July); 816-833 (Aug.); 928-942 (Sept.) 1943.
12. Reese, Algernon B.: Tumors of the Eye, New York, Paul B. Hoeber, 1951.

III

TREATMENT OF EXOPHTHALMOS ASSOCIATED WITH THYROID DYSFUNCTION

ROBERT M. DAY, M.D.
NEW YORK, NEW YORK

THE characteristic feature of the eye signs associated with thyroid dysfunction is variability. This must constantly be borne in mind in attempting to evaluate any form of treatment. The onset may be insidious or abrupt, the signs may be mild or severe, and the duration of the active process may be from a few weeks to many months or years. The concept of two distinct ocular processes associated with thyroid disease is now less widely held. Rather, more and more clinicians have adopted a unitarian concept. Most frequently there is upper lid retraction with no subjective complaints. As the process increases in severity, the patient complains of upper lid fullness, especially on arising, tearing, a "sandy" sensation in the eyes, double vision, and a feeling of fullness about the orbits. Objectively, there is a tense swelling about the lids, the lacrimal glands become palpable, there is a deep injection of the globes—most marked temporally, chemosis appears, and there develops limitation of ocular motility, most characteristically of elevation. Associated with these signs is a variable degree of exophthalmos. The combination of upper lid retraction, limitation of elevation and exophthalmos leads to corneal exposure and the danger of corneal ulceration and perforation.

The frequency of the occurrence of each of these signs decreases, as each represents increasing severity of the orbital disease. Therefore, mild ocular signs are frequent in association with thyroid dysfunction, but rarely do they progress to the most severe form. Most patients with these orbital complications do relatively well, and this fact is very important in attempting to assess the efficacy of any form of treatment.

The local treatment of these ocular complications is essentially symptomatic. The mildest and most common variety, consisting essentially of upper lid retraction, requires no therapy. If edema of the orbital structures develops, the patient will be more comfortable if he will sleep with his head elevated. This decreases the accumulation of fluid during the night. Once the extraocular muscles are involved, diplopia may be extremely annoying, and occlusion of the nondominant eye often affords marked relief. The most important consideration, however, is the prevention of corneal exposure. When corneal exposure is slight, any bland ophthalmic ointment at bedtime will relieve the drying of the corneal epithelium which tends to occur during sleep. If the corneal changes are not promptly relieved or the orbital disease shows signs of progressing, lid adhesions should be placed, and placed promptly. Not only may the pressure within the orbit increase at an alarming rate, but the fluid accumulation within the tissues of the lid may prevent proper wound healing, so that the lid adhesions pull out as soon as the sutures are removed. Under such circumstances one is forced to resort to some form of or-

From the Institute of Ophthalmology, Presbyterian Hospital, New York, and the Department of Ophthalmology, College of Physicians and Surgeons, Columbia University.

bital decompression, a subject which Dr. Naquin will discuss.

The systemic treatment of these ocular complications is not too satisfactory, as is so often the case in any disease process of unknown cause. As a rule, the patient should be brought toward euthyroidism. However, the concept long held by Dr. Means in Boston that too vigorous control of the hyperthyroidism may precipitate more severe eye changes appears to be valid. Such a concept is difficult to prove, but its importance is to be emphasized. Any patient with suggestive eye signs or who has complaints referable to his eyes should be treated very cautiously with antithyroid drugs, taking months or even a year to reach the euthyroid range. Great care should be taken to prevent the patient from becoming hypothyroid. The method of prevention is probably the best form of treatment.

Thyroid extract by mouth has been advocated for many years. The rationale for its use has been an attempt to reduce the output of thyrotropic hormone by the pituitary, the hormone which has been said to be responsible for the orbital changes. In addition, if there is any basis for the theory of the danger of too rapid control of the thyrotoxicosis, it might tend to counteract this rapid control. However, most clinicians are now agreed that thyroid extract has little or no effect on the orbital disease.

The steroid hormones have also been widely used. Both the estrogens and testosterone have had their advocates in the past but are rarely used today. The corticosteroids, however, are quite widely employed, and there are numerous conflicting reports on their use in the literature. Their effects are quite unpredictable. In some patients they seem to do little, while in others they do suppress the inflammatory elements, although they do not cure the disease. This suppression of inflammation may be of great help in tiding the patient over the most severe phase of the orbital process. In short, the corticosteroids do not always help, but they may be worth a try.

Irradiation of the pituitary and hypophysectomy have also been recommended, in an attempt to decrease the output of any pituitary factor which might be causing the severe orbital signs. However, the results of these forms of therapy are equivocal. The full effects of irradiation may not be apparent for several months, at a time when the disease process may have run its natural course. The question always arises as to how much irradiation is scattered to the orbits themselves. Hypophysectomy, a rather radical procedure, has probably been done too infrequently to draw any definite conclusions from reports of its use.

Recently Dr. Sidney Werner, in New York, has reported on the use of spironolactone, which decreases the lid swelling and chemosis. However, this is probably a nonspecific dehydrating effect, although at the moment the exact mechanism is not known. It may be that the drug will prove to be useful in decreasing the edematous element of the disease. He also reported that its use in combination with the corticosteroids, to reduce the inflammatory element, resulted in a greater beneficial response.

Finally, there is the question of reassurance. Most patients with this disease do relatively well. A frank discussion of the facts and some knowledge of the natural course of the disease do as much good as any other form of therapy.

In summary, there are three points which should be emphasized:

1. The ocular picture associated with thyroid dysfunction is extremely vari-

able, and this must be constantly borne in mind in evaluating any form of treatment.

2. Reassure the patient.

3. When the ocular symptoms predominate, the hyperthyroidism should be treated very cautiously; prevention of the severe ocular complications is the best form of treatment.

IV

SURGICAL TREATMENT

HOWARD NAQUIN, M.D.
BALTIMORE, MARYLAND

THE surgical treatment of exophthalmos is conveniently considered in two categories: (1) the surgical treatment of exophthalmos secondary to orbital tumors; and (2) the surgical protection of the globe in exophthalmos. The prime requisite for good orbital surgery is a knowledge of the anatomy of the orbit and its environs, and no surgeon should undertake any orbital operation without first mastering this basic requirement. On occasion, surgical assistance may be required from the neurosurgeon or from the rhinologist. Surprises are numerous in orbital surgery, and no orbital procedure should ever be undertaken without the instruments or assistance available that might be unexpectedly required. Definitive diagnosis in exophthalmos often awaits examination of biopsy specimens; therefore, definitive surgery must often await pathologic diagnosis. When possible, biopsy of orbital lesions should be excisional biopsy.

I. SURGICAL TREATMENT OF EXOPHTHALMOS SECONDARY TO ORBITAL TUMOR

The surgical treatment in exophthalmos secondary to orbital tumor depends upon the size, location and character of the orbital tumor. Even after exhausting all diagnostic methods, these facts frequently remain unknown. Benedict's advice certainly applies.[2] He stressed the importance of ". . . preparedness to complete the necessary surgical treatment involved in any attempted [orbital] operation and to refrain from meddlesome interference to satisfy curiosity in indeterminate cases."

In the removal of all orbital tumors, excessive traction on the globe must be avoided. Blunt dissection must be used whenever possible, and sharp dissection must be used only under direct visualization. Unnecessary manipulation of retrobulbar tissue must be scrupulously avoided. The extraocular muscles, especially the levator, must be treated with respect.

A. *Local Excision*

1. *Anterior Route*

When a tumor is in the anterior portion of the orbit, it can be removed through one of the anterior routes. "The size and position of the tumor lying in the anterior third of the orbit will largely determine the method of frontal approach."[2] Lacrimal gland tumors require special surgical technique, as advocated by Reese.

a. Superior temporal route (Benedict). The incision is made through skin parallel with and 5 mm. above the rim of the orbit on the superior-temporal

side. The soft tissues are divided, and periosteum incised. The periosteum along the orbital rim, and its extension, the periorbita, are separated from bone with a periosteal elevator. The periorbita is pulled forward and down so that the contents of the orbit can be palpated and the tumor located. The incision through the periorbita can then be made at the most advantageous place. The tumor is then removed, the periorbita sutured with catgut, the periosteum reattached above the orbital rim with catgut, and the skin incision closed with silk.

b. Superior nasal route (Callahan). A curved incision is made through skin and subcutaneous tissues from a point level with and 10 millimeters medial to the medial canthus, extending upward and outward just above the supraorbital rim to its highest point. The periosteum is elevated from the orbital rim except in the region of the trochlea. The area of bone holding the trochlea is fractured from the bony orbit with a chisel and hammer. The bone fragment with trochlea remains attached to the periosteum and the periorbita is separated from the orbital roof. Incision is made through periorbita over the tumor, the tumor is removed, and the periorbita is sutured with catgut. The bone fragment with attached trochlea is fixed back into its original position and sutured with tantalum wire if necessary. The periosteum along the orbital rim is sutured with catgut, and the skin is closed with silk sutures.

c. Lower lid (Davis). The skin incision is made along the lower orbital margin, and carried through the orbicularis muscle and orbital septum. Dissection is carried posteriorly between the inferior oblique and inferior rectus muscles above, and the periosteum below. The tumor is located and removed, and the incision is closed.

d. Lateral transconjunctival approach (Knapp, Reese). A lateral canthotomy is performed, dividing the fibers of the lateral canthal ligament and the lateral portion of the septum orbitale. The conjunctiva and Tenon's capsule are reflected anteriorly. The lateral rectus is detached, and the globe is rotated nasally. The tumor is located and removed with blunt dissection. The lateral rectus is reattached and the orbital septum, conjunctiva and lateral canthal ligament are resutured with catgut. The canthotomy is closed with silk sutures.

2. Lateral Route (Krönlein-Berke)

The most satisfactory orbital exposure is obtained by resection of the lateral wall of the orbit, and this approach is indicated in all tumors which cannot be satisfactorily approached by one of the anterior routes. On occasion, one may begin with a lateral transconjunctival approach and progress into resection of the lateral wall if it becomes apparent that more exposure is necessary. Berke's modification of the old Krönlein procedure is excellent, and we will describe his procedure.

If necessary, the Krönlein-Berke procedure can be done under local anesthesia, but usually general anesthesia is preferable. The head is steadied with sandbags, with the temple region up. The external rectus muscle is identified with a silk stay suture at its attachment. An intermarginal lid suture protects the cornea during surgery. A 4-centimeter horizontal incision is made with a scalpel from the external canthus toward the ear, and carried down to the temporal fascia posteriorly and the periosteum over the orbital rim anteriorly. The external canthotomy is extended through the conjunctiva with scissors to the lateral orbital margin. The upper and lower limbs of the canthal ligament are marked with sutures, and then the ligament and orbital septum are separated

from the lateral orbital margin up to the superior and down to the inferior orbital margins. The upper and lower skin flaps are undermined from the temporal fascia for 2 centimeters. The periosteum is incised along the lateral orbital rim, and its extension, the periorbita, is separated from the lateral orbital wall towards the apex of the orbit, using a periosteal elevator. The periosteum over the outer aspect of the lateral orbital wall is incised to mark the sites of bone cuts, parallel to the superior and inferior orbital margins. The Stryker bone saw is used to incise the bone above for a distance of 10 to 12 millimeters, with the blade at an angle of about 45 degrees to the orbital floor, and with the globe protected by use of a wide retractor. The lower bone cut is made for a distance of 10 to 12 millimeters with the blade parallel to the floor of the orbit. The check ligaments of the external rectus are divided and the lateral wall of the orbit is fractured posteriorly by turning the bone flap laterally with rongeur forceps. The bone flap is removed

The thin bony wall posterior to the fracture may be removed with rongeurs if necessary to obtain better exposure. The periorbita is opened towards the apex. The orbit is then inspected and palpated to determine the location and size of the tumor. If necessary, the lateral rectus can be divided. The tumor is removed, if possible, by use of blunt dissection. The periorbita is closed with catgut sutures. The bone flap is then replaced, suturing the periosteum with catgut sutures. The upper and lower arms of the canthal ligament are sutured to the periosteum adjacent to the lateral orbital tubercle. The skin is sutured with silk sutures, and a pressure dressing is applied.

3. *Transcranial Approach (Dandy* 1921)

This neurosurgical approach is ideally suited for intracranial tumors with extension into the orbit, or orbital tumors with extension into the cranium. Surgical technique need not be discussed.

Eagleton[10] described an approach to the orbit through the lateral wall, but his opening was carried superiorly to remove the roof of the orbit, elevating and separating the dura from the floor of the anterior fossa. Thus, both the outer and the superior area of the orbit may be entered through the temporal and lacrimal fossa and the anterior fossa of the skull.

B. *Local Excision and Enucleation*

In certain instances, it may be necessary to enucleate the eye at the time of removal of an orbital tumor. This combination might be indicated when dealing with an orbital tumor and a blind eye, or when the tumor involves both eye and orbit. Removal of the globe obviously facilitates the removal of the orbital tumor.

C. *Exenteration of the Orbit*

Exenteration of the orbit must be restricted to instances of malignant tumors of the orbit; therefore, it is imperative that a definite histopathologic diagnosis be made prior to exenteration. Orbital tumor biopsy by one of the previously discussed approaches will, therefore, always precede exenteration of the orbit. Moreover, except in very unusual circumstances, this operation should not be carried out if there is evidence of tumor metastasis beyond the orbital region. The surgical technique will not be discussed.

II. SURGICAL PROTECTION OF THE GLOBE IN EXOPHTHALMOS

A. *Tarsorrhaphy*

Corneal exposure with resultant ulceration is one of the dreaded complications of exophthalmos. Temporary or

permanent corneal covering can be achieved by tarsorrhaphy. Wheeler's tarsorrhaphy is an excellent procedure. The conjunctiva and skin, including the lashes, are excised along the margin of the lateral portion of the upper lid over the desired distance of shortening. In the lower lid over the corresponding area, the lashes are excised and a slit is made between the skin and conjunctiva into which the denuded tongue of tissue from the upper lid is pulled and sutured with a double armed silk suture. Tarsorrhaphy may be used to prevent the development of an ulcer or to promote the healing of an already deveioped ulcer. On occasion, lateral tarsorrhaphy can be used simply for cosmetic purposes, especially in instances of nonprogressive endocrine exophthalmos. Intermarginal lid adhesions may be used as temporary or permanent means of corneal protection. Tarsorrhaphy may be used in conjunction with orbital decompression.

Surgical protection of the globe is achieved in the immediate postoperative period following orbital surgery by suturing the upper and lower lids together over rubber pegs, as described by Reese.[27] Two silk sutures are passed through the skin of the upper lid, emerging from the lid border, to enter the lid border of the lower lid and emerge from the skin of the lower lid. These are tied over rubber pegs.

B. *Recession of Levator*

In certain instances, especially when the exophthalmos has reached a nonprogressive state, recession of the levator may be indicated. By lowering the upper lid, cosmetic appearance may be improved and extra protective covering given to the cornea. Two surgical techniques are available, that of Goldstein[12] and that of Berke.[4]

In Goldstein's recession, a conjunctival incision through the conjunctiva only is made at the upper margin of the tarsus, for the entire length of the lid. The upper flap of conjunctiva is then freed from the levator for 10 millimeters. An incision is made through conjunctiva and tarsus, one millimeter below the upper edge of the tarsus, for the entire length of the lid, and dissection is continued upwards to free the levator from the underlying fascia for 10 millimeters. Three double armed sutures are passed from below upwards, cutting off the 1 millimeter of tarsus before passing the sutures. The sutures are brought out on the skin surface just beneath the brow. The conjunctiva is closed with a running stitch.

Berke's technique of tenotomy of the levator is a simple and excellent procedure. The lid is everted on an Erhardt lid clamp and an incision made through the length of the tarsus one millimeter from its upper edge and extended into the pretarsal tissues until the edges of the wound expand to at least twice the amount of correction desired. No sutures are used to close the wound. One intermarginal suture is inserted and left in place for three to four days to prevent the cut edges of the tarsus from growing together again.

C. *Cervical Sympathectomy*

Cervical sympathectomy has been suggested as a surgical means of lowering the upper lid and thus offering additional protection to the cornea. This procedure would seem to be of historical interest only.

D. *Decompression of the Orbit*

Various techniques have been described for the surgical decompression of the orbit in exophthalmos. Decompression into the anterior cranial fossa has seen its day and should now be discarded. The procedure of choice for orbital decompression is and should be decompression into the temporal fossa.

This procedure is easy to perform, entails the least operative risk, and when properly done gives good results.

General anesthesia is preferred, but if desired, local anesthesia is satisfactory. The head is steadied with sandbags, temple upwards. A 5-centimeter horizontal skin incision from the lateral canthus towards the ear, and carried down to the temporal fascia is made, using a scalpel. The upper and lower skin flaps are undermined for 25 millimeters, exposing the periosteum over the lateral rim of the orbit. The orbital periosteum is incised at the lateral orbital rim and separated from the inner aspect of the lateral orbital wall, using a periosteal elevator. The periosteum is similarly removed from the outer side of the lateral orbital wall, and the temporalis muscle is retracted posteriorly.

This exposes the entire anterior portion of the lateral orbital wall. Two cuts are made with the Stryker bone saw, the lower parallel with the floor of the orbit, and the upper with the blade at an angle of 45 degrees to the orbital floor. A wide retractor protects the globe during these cuts. The lateral wall is fractured posteriorly, and the bone flap is removed. Using rongeurs, the posterior portion of the lateral orbital wall is removed, removing bone inferiorly as far as the inferior orbital fissure and posteriorly to the inner table of the great wing of the sphenoid, and superiorly to the body of the frontal bone. Retrobulbar tissue covered by orbital periosteum now bulges through the bony opening. An H-shaped opening is made in the periosteum, with parallel cuts above and below the external rectus muscle. The efficacy of the decompression is checked by pressing the globe posteriorly. Temporal muscle overlying the bony defect is removed with scissors, and all bleeding is controlled. The bone flap is not replaced. The skin is closed in layers, and the lids are sutured temporarily. If exposure keratitis is present preoperatively, a lateral tarsorrhaphy may be elected. A pressure dressing is applied, with pressure on the globe and minimal pressure over the temporal fossa.

Various modifications of this procedure have been described. The skin incision may be made in the hairline, as described by Shugrue and by Guyton.[13] The anterior rim of the lateral orbital wall may be left intact, and decompression effected through a window. The temporalis muscle need not be excised.

REFERENCES

1. Benedict, William L.: Removal of orbital tumors, Surg Gynec Obstet, 58:383-389, 1934.
2. ———: Surgical treatment of tumors and cysts of the orbit, Amer J Ophthal, 32: 763-773 (June) 1949.
3. Berke, Raynold N.: A modified Krönlein operation, Arch Ophthal, 51:609-632 (May) 1954.
4. ———: Results of resection of the levator muscle through a skin incision in congenital ptosis, Arch Ophthal, 61:177-201 (Feb.) 1959.
5. Bothman, Louis: Endocrines in ophthalmology, Illinois Med J, 65:226-235 (March) 1934.
6. Callahan, Alston: Surgery of the Eye: Diseases, Springfield, Ill., Charles C Thomas, 1956, p. 317.
7. Dandy, Walter E.: Results following the transcranial operative attack on orbital tumors, Arch Ophthal, 25:191-216 (Feb.) 1941.
8. Davis, Frederick A.: Primary tumors of the optic nerve (a phenomenon of Recklinghausen's disease), Arch Ophthal, 23: 735-821 (April) and 957-1018 (May) 1940.
9. Dollinger, Julius: Die Druckentlastung der Augenhöhle durch Entfernung der

äuberen Orbitalwand bei hockgradingem Exophthalmus (Morbus Basedowii) und konsekutiver Hornhauterkrankung, Deutsch Med Wschr, 37:1888-1890, 1911.

10. Eagleton, W. P.: A case showing the possibility of exploring the orbital contents from behind through the cranial fossa, Arch Ophthal, 41:162, 1912.

11. ———: Exophthalmos from surgical diseases, especially as to involvement of the protective retrobulbar space, Arch Ophthal, 14:1-40 (July) 1935.

12. Goldstein, Isidor: Recession of the levator muscle for lagophthalmos in exophthalmic goiter, Arch Ophthal, 11:389-393 (March) 1934.

13. Guyton, J. S.: Decompression of the orbit, Surgery, 19:790-809 (June) 1946.

14. Jaboulay: Bull Acad de Med, Paris, 38: 139, 1897.

15. Knapp, H.: A case of carcinoma of the outer sheath of the optic nerve, removed with preservation of the eyeball, Arch Ophthal, 4:323-354, 1874.

16. Knauer, W. J.: The surgical treatment of exophthalmic ophthalmoplegia, Amer J Ophthal, 43:58-66, 1957.

17. Krönlein, R. U.: Zur Pathologie und operativen Behandlung der Dermoidcysten der Orbita, Beitr Klin Chir, 4:149-163, 1888.

18. Lyle, T. Keith: Some aspects of the treatment of paralysis of the extrinsic ocular muscles in exophthalmic ophthalmoplegia, Trans Ophthal Soc U K, 71: 265-285, 1951.

19. Mayo, Charles H.: The surgical treatment of exophthalmos, JAMA, 63:1147-1149 (Oct.) 1914.

20. Moran, Robert E.: Decompression of the orbit for exophthalmos, Trans Amer Goiter Ass 52-61, 1953.

21. Naffziger, Howard C.: Progressive exophthalmos following thyroidectomy; its pathology and treatment, Ann Surg, 94: 582-586, 1931.

22. ———: Exophthalmos: Some principles of surgical management from the neurosurgical aspect, Amer J Surg, 75:25-41 (Jan.) 1948.

23. ———: Our present knowledge of exophthalmos and its surgical treatment, Ann West Med Surg, 2:397-401 (Sept.) 1948.

24. ———: Exophthalmos and its surgical treatment, Amer J Ophthal, 32:857-858 (June, pt. I) 1949.

25. Naffziger, Howard C., and Jones, O. W., Jr.: Surgical treatment of progressive exophthalmos following thyroidectomy, JAMA, 99:638-642 (Aug.) 1932.

26. Reese, Algernon B.: Exophthalmos: ocular complications; causes from primary lesions in the orbit; surgical treatment, Arch Ophthal, 14:41-52 (July) 1935.

27. ———: Orbital tumors and their surgical treatment, Amer J Ophthal, 24 (Part I) 386-394 (April); (Part II) 497-502 (May) 1941.

28. Sewall, Edward C.: Operative control of progressive exophthalmos, Arch Otolaryng, 24:621-624 (Nov.) 1936.

29. Swift, G. W.: Malignant exophthalmos and operative approach, Western J Surg, 43:119-126 (March) 1935.

30. Tinker, Martin B.: The surgical treatment of exophthalmos, JAMA, 59:989-991 (Sept.) 1912.

31. Welti, H., and Offret, S.: Exoftalmios malignos. Su tratamiento quirúrgico [Malignant exophthalmos. Its surgical treatment], Rev Otoneuroophtal, 21:7-15 (Jan.-Feb.) 1946.

V

MANAGEMENT OF SECONDARY FACTORS

JOHN M. McLEAN, M.D.
NEW YORK, NEW YORK

You have heard about the differential diagnosis of exophthalmos, you have had a discussion of the role of thyroid dysfunction, and you have just been given a survey of the surgical approach. All that remains is the management of secondary factors—all those little, unimportant items that have been left out; all those minor matters that fail to impress the physician; some of those side issues that loom so large before the patient's bulging eyes.

We can divide these factors into five groups: (1) exposure changes, with threatened loss of vision or of the eye itself; (2) pressure changes, with true or false glaucoma and its dire implications; (3) extraocular motor changes, with accompanying double vision that may annoy or incapacitate the patient more than his exophthalmos; (4) fundus changes, with major or minor implications; and (5) intracranial changes, with threat to life itself.

CHANGES CAUSED BY EXPOSURE

Let us look first at the changes caused by exposure. There may be only minor drying of the eye or minimal redness. There may be only the cosmetic blemish of thyroid stare or lid retraction. They force attention to the exophthalmos and its cause. You have already heard them discussed. There may be more serious exposure keratitis with or without chemosis. When these changes occur, protection for the eye is urgently demanded—lubricants, ointments or oils, moist chamber spectacles, Buller shields or, better, their homemade cellophane equivalents, judicious and properly applied dressings, or even more radical steps. Should we start right out with "prophylactic" antimicrobial and anti-inflammatory steroids? As a general rule I prefer not to, although many in this room would disagree with me. If the only problem is simple exposure, the only indicated management is protection from that exposure. Why set the stage for fungus or virus complications?

The next phase, that of active ulceration, either is or soon will be secondarily infected. Here antimicrobials are in order. Broad spectrum combinations are the best choice, for such infections are usually mixed and not easily delineated by simple cultures. Temporary lid sutures or more permanent tarsorrhaphies may be required to combat exposure while drugs attack potential or real infection. Necrotic tissue usually must be debrided, and one hopes to control the situation before perforation threatens. When it does, debridement followed by conjunctival flap must be considered; or, if the infectious element is not too severe, lamellar keratoplasty. Simple perforations may be repaired by flaps or grafts, but those which are followed by hopeless panophthalmitis usually call for removal of the globe. Evisceration is generally preferred to enucleation under these circumstances, although enucleation with drainage may be the better choice. With either procedure, implants are usually contraindicated.

Serious exposure which can be expected to continue, as in some thyroid cases, may need more lasting protection.

This can be achieved, as has been already indicated, by various types of lateral canthoplasty, recession of the levator, or a combination of both. Not every severe thyroid exophthalmos requires decompression by any means.

CHANGES IN INTRAOCULAR PRESSURE

Changes in intraocular pressure in the presence of exophthalmos may present a considerable problem. Accurate measurements by tonometry may be difficult because of the orbital pressure. Ordinary impression tonometry, even if satisfactorily done, may be subject to great error from alterations in ocular rigidity. Applanation tonometry will minimize these errors, or multiple weight readings and rigidity correction can be used. Particularly in that phase of thyroid exophthalmos which is usually classified as "thyrotropic," rigidity may be grossly altered. A single-impression tonometer reading may be falsely low and, indeed, a normal reading may reflect glaucoma. As a rule of thumb for those who do not have applanation tonometers available and who find rigidity corrections onerous, we might say that if readings with different tonometer loads disagree, the reading with the lesser weight is more accurate than the reading made with heavier weight, but the true pressure is still greater and in the same direction. For example, if the reading with a 10-gram weight converts to 20 mm. Hg and the 5.5-gram reading to 25 mm. Hg, the true pressure is more nearly 33 mm. Hg. The applanation reading would have been very close to this and tonography might have shown a flat tracing.

If true open angle glaucoma or secondary glaucoma are found in the presence of exophthalmos, the best immediate management is usually nonsurgical. After the orbital problem has been corrected, careful reappraisal of the glaucomatous state is in order and the usual management may be pursued. As far as I am aware, bulbar pressure tests have not been adequately evaluated in the presence of exophthalmos.

Angle closure glaucoma can, of course, occur in the presence of exophthalmos. In fact, the external pressure in the globe may help predispose to it. Management of this complication is basically the same as in the absence of the exophthalmos: medical control, including the use of urea when necessary, and then iridectomy. Incidentally, we have heard it said that intravenous urea reduces orbital pressure and makes orbital surgical exposure easier. We have been unable to confirm this finding and unable to find any logical reason why it should be so. Except for the softening effect on the globe itself, there seems to be no orbital response.

IMPAIRMENT OF EXTRAOCULAR MUSCLE FUNCTION

Impairment of extraocular muscle function has already been considered in connection with diagnosis. In the immediate management of this diplopia, monocular occlusion is usually best whether the cause be mechanical muscle obstruction or nerve involvement. In the more protracted cases or in the postoperative permanent defects, the problem may be very difficult. Nearly all of these cases are noncomitant. The ordinary use of prisms is rarely successful. When diplopia is present in part of the visual field only and not too severe, a slab-off prism may restore reasonable comfort when an over-all prism may fail. This is particularly true in otherwise adequately controlled thyroid cases. Partial diplopia may also be handled by partial occlusion. It should not be necessary to stress to this audience the fact that the partial occluder must be on the spectacle lens before the *sound* eye. Yet surprisingly enough, not only patients, but also some ophthalmologists feel that the paretic eye, being the one at

fault, should be the one occluded and are amazed when this does not work.

When the original exophthalmos problem is solved but motor abnormalities persist beyond the range of prism correction, surgical intervention must be considered. The detailed approaches are so varied and must be so individually tailored to each case that only generalities can be considered in this discussion. After surgical excision of a tumor, we may be left with complete or partial paralysis of one or more muscles either from tumor invasion or surgical trauma, or both. Some of these cases are too extreme to rectify. Some are so mild that simple procedures such as recession or resection will give very satisfactory results. Compensatory muscle surgery on the sound eye, illogical though it may seem to the patient, may be required.

Muscle transplants of the Hummelscheim type may have a place, although evidence is slowly accumulating that this effect can be as well produced by simple lateral displacements in the direction of the paralyzed muscle. When there is possibility of change or recovery, it is usually wise to postpone muscle surgery until stabilization has ensued. However, when we know that surgical excision of a muscle or nerve segment precludes recovery, delay only invites further secondary contracture and early operation has a much better prognosis.

Post-thyroid and postinflammatory cases have much in common. Here months of observation until a steady state has been reached are imperative. Then passive duction tests must be carefully carried out, for many cases of apparent palsy represent mechanical limitation. Release of such adhesions must be considered but, in general, functional strengthening of the involved muscles is much less rewarding than functional weakening of the direct antagonists and compensatory surgery on the muscles of the fellow eye. This generalization must not be adopted too rigorously, for careful analysis of individual cases will reveal instances where any or all of the "rules" should be broken. Among muscle operations on the post-thyroid case, levator recession is not to be forgotten.

SECONDARY FUNDUS CHANGES

In general there is little management of the secondary fundus changes. They are more important as diagnostic evidence. Papilledema as evidence of orbital pressure may be the deciding factor in early surgical intervention. Optic atrophy and accompanying field defects may be helpful in localization. These factors have already been considered. Tumor extension into the globe usually indicates a more radical approach. Retinal striae, once thought to be definite evidence of tumor, are only signs of severe posterior pressure and may be found in pseudotumor and thyroid cases. If they have been present for long, they may persist well after the pressure has been removed.

INTRACRANIAL COMPLICATIONS

Finally we come to the most serious of the secondary factors, intracranial complications. When tumor extension behind the orbit is recognized initially, it may dictate intracranial rather than external orbital approach. When the sinuses are involved, they are often best approached from the front. Lymph node extension may require radical neck dissection. Cavernous sinus thrombosis, once nearly always fatal, may now respond well to combined antibiotic and anticoagulant measures.

SUMMARY

The secondary factors must be evaluated with care, corrected or ameliorated as they arise, and always managed with due realization that they can be most annoying or even incapacitating to the patient. General principles can be followed, but each case calls for individual attention and judgment.

VI

DISCUSSION

DR. SPAETH: *Dr. McLean, what can you hope to show by pneumotomography that you cannot show by ordinary x-rays?*

DR. MCLEAN: I think I can answer the question best by showing you what we can see in pneumotomography, by which I mean, of course, injection of air (and instead of air we usually use oxygen, it works better and absorbs a little faster) into the orbit, then taking roentgenographic sections of both the frontal and sagittal planes.

[Slide] Here is a normal orbit with the globe outlined by air as seen in roentgenographic section near the center.

[Slide] Here is a view from the front with the arrows pointing to the oblique muscles as outlined. The original roentgenograms show the structures more clearly than do these projections from the lantern slides.

[Slide] Here is a section in the frontal plane, taken a little further back, showing the globe outlined, orbital oxygen and the rectus muscles.

[Slides] Next is a lateral view, with the arrow pointing to the optic nerve. Again we see the outlined globe and the oblique muscles.

[Slide] A view further back, completely behind the globe, now shows the optic nerve outlined near the apex of the orbit by the air. This will be seen clearly in roentgenographic section, but will not show in simple air injection or in simple tomography without a combination of both.

[Slides] Here we have a section through the orbit in the frontal plane outlining the retrobulbar tumor.

[Slide] Here is another case; the globe is pushed forward. The arrow is centered on the tumor in the orbit.

[Slide] This happens to be the case in which you also saw the retinal striae. This is a photograph of the fundus of that patient. The globe is outlined by air, showing that it is pushed forward and out from the orbit. Here is the tumor in contact, pressing directly on the globe, as it is outlined by pneumotomography.

DR. SPAETH: The next two questions will be turned over to John Henderson: (1) *Comment on trial irradiation in view of increased incidence of leukemias following irradiation;* (2) *comment on the therapy of lymphatic tumors in the orbit, because "they may be radiosensitive, but are they radiocurative?"*

DR. HENDERSON: I am not sure that I can answer either of these questions in terms of any great series. The number of cases in which the trial of irradiation is definite is never very great. These are the cases in which all of the findings will be negative, except for the presence of the exophthalmos, and in which we may then find a palpable mass which we prefer not to approach as yet because of the lack of immediate danger. There may be a definite and rapid regression with the application of a very small amount of x-ray—I refer to a diagnostic amount, not a therapeutic amount. As to whether it is related to the occurrence of leukemia, I will say

that I don't think there are enough cases in a series of this sort to be statistically significant, and I can't answer that question.

DR. SPAETH: Here are two questions I will turn over to Dr. Naquin.

First, an odd question: *Should a decompression of the orbit be done for cosmetic reasons or to relieve ocular discomfort in an exophthalmos which has remained stationary for five years?*

Second, *Do you feel that decompression of the optic foramen in thyroid exophthalmos is helpful?*

DR. NAQUIN: I will answer the second question first. I believe that the neurosurgeons prefer their intracranial approach to decompression chiefly because they feel that removal of the roof of the optic foramen will relieve pressure on the optic nerve within the canal and thereby help the patient. I know of no evidence that this is the case. I think that at least in our hands, one of the chief indications for orbital decompression, as has already been mentioned, is that of corneal troubles, and certainly these will not be helped by unroofing the optic canal.

Until it can be proved that pressure on the optic nerve within the intracranial portion of the optic canal causes loss of vision in exophthalmos, I see no need to advocate this type of therapy.

In regard to the question concerning orbital decompression merely for cosmetic reasons, this has been done in the past. It is not my policy to do it. I would much prefer to do some type of levator recession in these cases, possibly combined with a lateral tarsorrhaphy. If, however, I were to elect to do a lateral decompression chiefly for cosmetic reasons, I would want to avoid the Berke type of skin incision and would use the hairline incision that was described first, I believe, by Shugrue and popularized by Guyton. In this case the decompression is done in the same manner except that the skin incision is done in the hairline, adding one less cosmetic defect. I do not do temporal decompression for cosmetic improvement.

DR. SPAETH: Dr. McLean, there are three questions on related glaucoma. *What is the mechanism of glaucoma in thyrotropic exophthalmos, with a deep chamber?* Another question: *Is glaucoma an indication for an orbital decompression?* And a third question: *What is the mechanism of glaucoma in exophthalmos with an arteriovenous fistula?*

DR. MCLEAN: That is a good combination of questions. The glaucoma to which I alluded in my discussion was a perfectly ordinary, chronic, simple, open angle glaucoma which could just happen to occur in a patient who has exophthalmos and in whom you may be fooled by the tonometric pressure testing because of alterations in rigidity in connection with the exophthalmos. To explain the mechanism of open angle glaucoma is a long story, not very pertinent to this discussion. As for the third question, the mechanism of secondary glaucoma with an arteriovenous fistula is a rather complex situation which has to do with back pressure in the venous system, increased resistance, essentially by increased pressure downstream, building all the way up to the region of the venous drainage, which, in turn, gets you into the upper scleral venous pressure, and that sort of thing, and everything backs uphill, including the intraocular pressure.

DR. SPAETH: A further question to Dr. McLean. *Has the glaucoma changed spontaneously, that is, without glaucoma surgery, in those cases which have responded to some type of carotid ligation, or are they all essentially surgical*

cases from a glaucoma standpoint?

DR. MCLEAN: I'm not sure, at the moment, that I can recollect clearly enough. We haven't had very many. I can't give you a positive answer. I would need to look it up.

DR. HENDERSON: Dr. Spaeth, may I try to help with that question? A year or two ago we analyzed a series of seventeen cases of cavernous carotid fistulas at our institution, and found that there are two distinct types of glaucoma in these individuals. One type occurred as an acute back-pressure phenomenon with elevation in tension which would apparently respond to the use of miotics and also to proper ligation without any glaucoma surgery. The second type occurs late in diseases in which loss of vision in the eye, accompanied by cataract formation and a combination of both venous and arterial blockages, can result in very severe changes in the orbit. This one is irreversible; the eye is blind, and a couple of these eyes in our series had to be enucleated.

DR. SPAETH: In conclusion, we all are indebted to this panel of distinguished clinical investigators for this evening's program. We thank them for it, and you, the audience, for your interest.

PULSATING ENOPHTHALMOS IN ASSOCIATION WITH NEUROFIBROMAS OF THE EYELID

OLIVER H. DABEZIES, JR. (M.D.), CAPT. MC
NEW ORLEANS, LOUISIANA

FRANK B. WALSH, M.D.
BALTIMORE, MARYLAND

DR. DABEZIES

THE startling appearance of ocular pulsation has caused considerable interest in this comparatively rare symptom. As early as 1811, a clinical report was made by Benjamin Travers of London,[15] who described a case of ocular pulsation caused by an aneurysm in the orbit. Since then, numerous case reports have appeared in the literature and several large series have been collected. We are adding one more case of ocular pulsation that occurred in association with neurofibromas of the eyelid, which is unusual in that enophthalmos, rather than exophthalmos, occurred. A similar case has been recorded by Goodhart and Balser.[5]

From an etiologic standpoint, ocular pulsation is usually divided into (1) *vascular,* in which case the vascular pulse is transmitted to the orbit, or (2) *cerebral,* in which case the orbital wall is defective and the cerebral pulsations are transmitted to the orbit. The great majority of cases are vascular in origin. They are usually associated with exophthalmos and approximately 90 per cent are due to a carotid artery-cavernous sinus fistula. In fact, many authors refer to the symptom of pulsating exophthalmos as if it were synonymous with the carotid artery-cavernous sinus fistula syndrome. This, however, is not the case, as several textbooks emphasize.[3,16]

There are less common vascular conditions, such as orbital varices, which cause pulsating exophthalmos. There are also several unusual cerebral conditions that cause this condition, such as neurofibromatosis which is associated with large dehiscences in the bony orbit, permitting a portion of the temporal lobe to protrude into the orbit. Another condition, cerebral in nature, is a traumatic hiatus of the orbital roof which allows a meningocele to protrude into the orbit.

CASE REPORT

A 27-year-old Caucasian male was admitted to Walter Reed General Hospital because of severe headaches. When this patient was about 7 years of age, he first noticed that the upper eyelid of his left eye "drooped a little." The ptosis was barely noticeable until he was in his early teens. He was otherwise asymptomatic. There was neither pigmentation nor thickening of the lid.

At the age of 17, the patient received a severe injury to the left frontotemporal area

At the time this paper was written Dr. Dabezies was on Ophthalmology Service, Walter Reed General Hospital, WRAMC, Washington 12, D. C. He is now affiliated with Tulane University, New Orleans.

Dr. Walsh is on the faculty of Wilmer Eye Institute, Johns Hopkins University, Baltimore, Maryland, and Consultant to the Surgeon General in Ophthalmology.

Presented at the Sixty-Fifth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 9-14, 1960, Chicago.

FIG. 1—Diffuse proliferation of Schwann cells without evidence of encapsulation. Process involved subcutaneous fat and skeletal muscle. (Hematoxylin and eosin; X 110.)

when a brick falling from a height of about 20 feet rendered him unconscious for three days. On regaining consciousness he was taken to the Bronx Eye, Ear, Nose and Throat Hospital, where his left upper lid was found to be thickened and ptotic, and several "cystic masses" could be palpated beneath the skin of the lid. There was no mention of enophthalmos or ocular pulsation. The "cystic masses" were excised. The tumor mass was 16 mm. by 11 mm. in the plane of section and was composed almost entirely of a diffuse proliferation of Schwann cells without evidence of encapsulation. The process involved subcutaneous fat and skeletal muscle. The histologic diagnosis was benign neurofibroma (fig. 1). There was no report of a roentgenographic examination of the skull.

At 19 years of age the patient again injured his left eye when the handle of a hoe on which he stepped struck him in the left eye. There was no loss of consciousness, but his vision was blurred for several days. He did not seek medical attention.

When he was 22 years of age, there was a gradual onset of blurred vision in the left eye, and the left eyelid was more ptotic and "thickened." He consulted an ophthalmologist, who prescribed glasses. There was no mention of enophthalmos or ocular pulsation at this time.

When he was 23, in addition to the blurred vision and ptosis, he experienced severe frontal headaches, particularly over the left side of the forehead. They usually followed reading or other close work. These headaches occurred almost daily but usually "wore off" after several hours.

During the next three years, the headaches became more severe and the left upper eyelid became "thicker and more droopy."

At the age of 26, because of these headaches the patient was hospitalized. The right eye was normal in every respect. The left upper eyelid was ptotic and edematous. A healed scar, approximately 3 cm. in length, was noted on the lateral aspect of the upper eyelid. Beneath this was a pea-sized nodule that was tender to palpation. Pulsation of the left eye was noted for the first time. The best corrected visual acuity was 20/60. The blind spot was slightly enlarged. No other ocular or systemic abnormalities were observed on physical examination. A series of skull roentgenograms revealed a bony defect encompassing the area of the superior orbital fissure, in which the wings of the sphenoid bone and the

FIG. 2—Posterior-anterior view of skull showing a radiolucent area which represents a bony defect in the superior and posterior portions of the left orbit. Note the smooth borders of the defect. Small black spots over supraorbital area are artefacts due to static. Left supraorbital rim shows sclerosis, compatible with an old healed fracture.

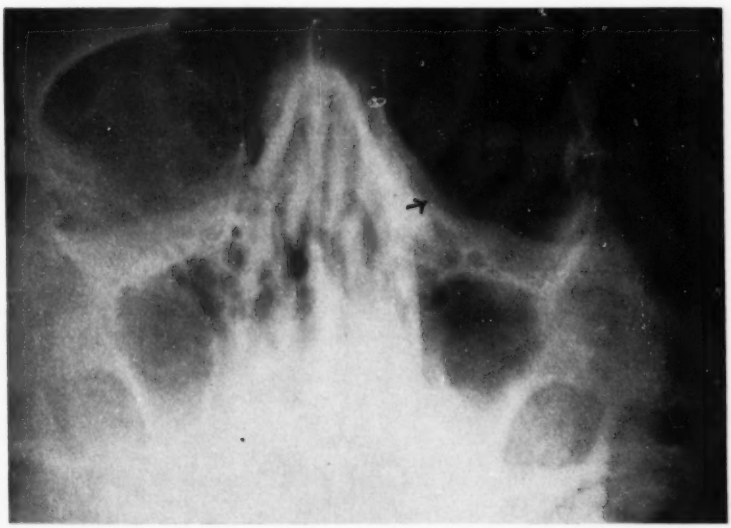


FIG. 3—Waters' view. Arrow indicates oval radiolucent area of posterior and superior orbit, representing absence of orbital portion of the frontal bone, lesser wing of the sphenoid, and part of greater wing of sphenoid bone.

FIG. 4—Lateral view of skull. Enlarged sella with intact posterior clinoids. Additional views showed left anterior clinoid partially absent.

orbital portion of the frontal bone were partially absent. The edges of the defect appeared clear-cut (fig. 2). There was some irregularity of ossification of the posterior portion of the lateral orbital wall, but the lateral orbital rim was intact. This area of sclerosis could have been the residue of the former trauma (fig. 2). The defect was oval and approximately 30 mm. in size (fig. 3). The sella turcica was enlarged, measuring 16 mm. in the anterior-posterior diameter and 18 mm. in depth. The floor of the sella and the posterior clinoid processes appeared normal (fig. 4). Additional stereoscopic views demonstrated the absence of the left anterior clinoid process. The right anterior clinoid process was normal.

An excision of the subcutaneous nodule and the surrounding skin of the left upper lid was performed. The histologic examination of the skin revealed characteristics of a neurofibroma. The epidermis was thin and moderately atrophic. In the underlying dermis there was a diffuse, unencapsulated cellular mass of nests and whorls which had replaced a considerable amount of the collagen and elastic tissue of the dermis (figs. 5 and 6).

There is some uncertainty regarding the exact histologic interpretation of the subcutaneous nodule. The original pathologic diagnosis was traumatic neuroma. The Chiefs of the Ophthalmic, Dermal and Neuropathology Sections of the Armed Forces Institute of Pathology reviewed the slide and agreed that this was not a traumatic neuroma. The bulk of the evidence indicated that it was a "burned out schwannoma." Longitudinally coursing nerve fiber bundles surrounded by Schwann cells could be identified, and the cells that composed the tumor "seemed to arise from the Schwann cells." The tumor was well encapsulated, which would not be expected in a neurofibroma (figs. 7 and 8). Stout[14] has pointed out that about 18 per cent of neurilemmomas occur in cases of frank or suspected von Recklinghausen's disease.

When the patient was 27, he was admitted to the hospital because of severe headaches and blurred vision in the left eye. On ocular examination, the right eye was normal in all respects. The eyelids were normal. The visual acuity was corrected to 20/20 with a correction of plus 1.25 sphere combined with a plus 0.25 cylinder at 15 degrees. The visual field was normal. There were no neurofibromas involving the iris or the retina.

Ocular examination of the left eye disclosed the following: The left upper eyelid was thickened, and definitely ptotic (figs. 9 and

FIG. 5—Skin of left eyelid. Diffuse cellular infiltration of corium, replacing collagenous and elastic tissue normally found in this area. The general pattern suggests the formation of whorls in some areas. (Hematoxylin and eosin; X 110.)

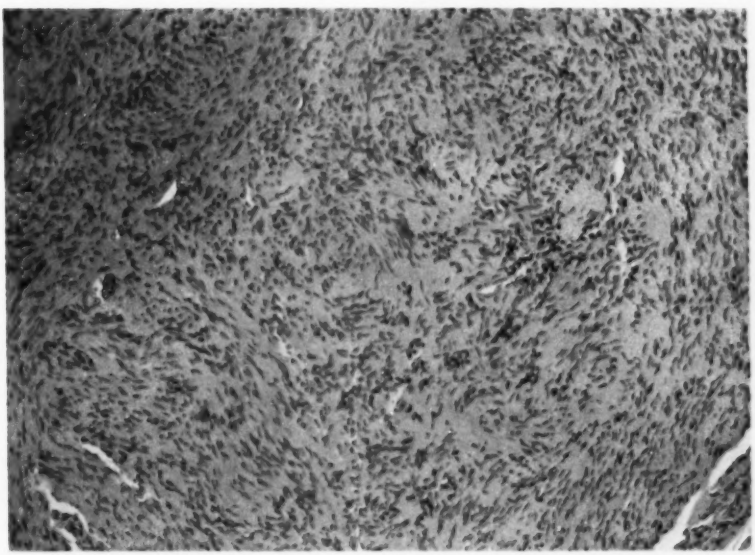


FIG. 6—Higher magnification (X 240) of cutaneous lesion shown in figure 5.

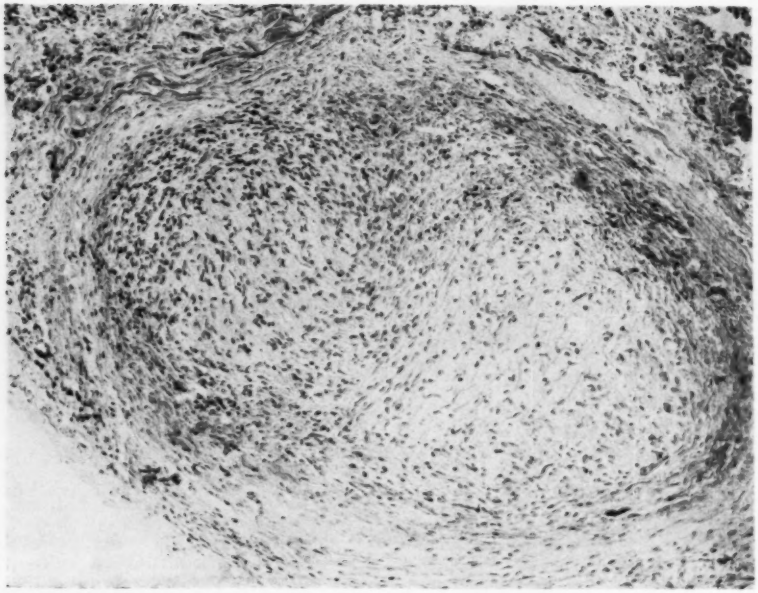


FIG. 7—Subcutaneous nodule showing encapsulation. (Hematoxylin and eosin; X 56.)

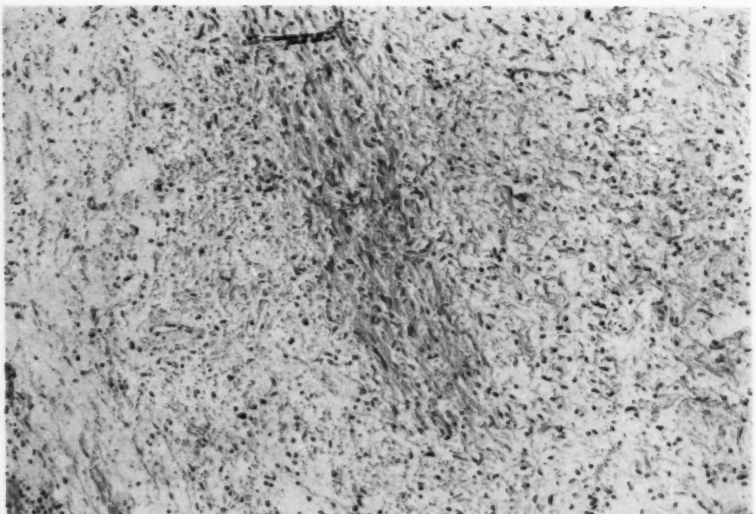


FIG. 8—Note area where Schwann cells surround a bundle of axis cylinders. (Hematoxylin and eosin; X 110.)

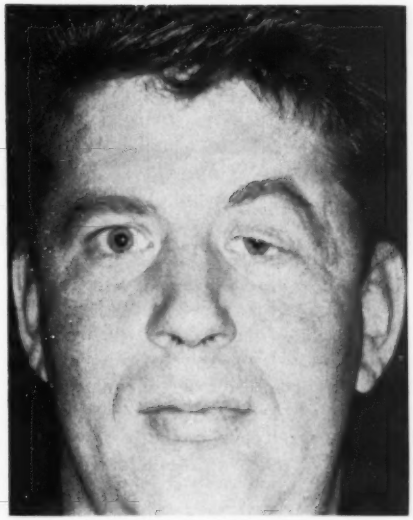


FIG. 9—Note unilateral ptosis on left, despite contraction of frontalis muscle (left eyebrow is arched). Also note slight depression in left frontotemporal area.

10). The interpalpebral fissure was about 3 mm. in width. No subcutaneous nodules could be palpated. The skin of the left eyelid was wrinkled, and small areas of slightly increased pigmentation were present. The visual acuity was 20/30 with a correction of minus 0.75 sphere with a plus 5.00 cylinder at 165 degrees. The visual field examination disclosed a slight enlargement of the blind spot. Ocular pulsation, synchronous with the radial pulse, was observed. The pulsation was about 2 mm. in amplitude. The rate of ocular pulsation could be increased by exercise and other measures that increased the radial pulse. No bruit was heard, either objectively or subjectively. Enophthalmos was present. When the patient sat erect and the Hertel exophthalmometer was set at 94 mm., the measurement of the left eye varied from 11 to 13 mm. (varying with the systole), while that of the right eye was 18 mm. When the patient lay on his back, the enophthalmos increased about 2 mm. When

FIG. 10—Close-up view of left eye showing upper eyelid thickened and ptotic. Small areas of slightly increased pigmentation are present.

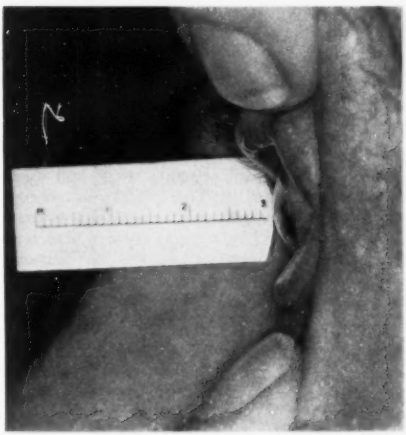


FIG. 11—Side view under normal conditions.

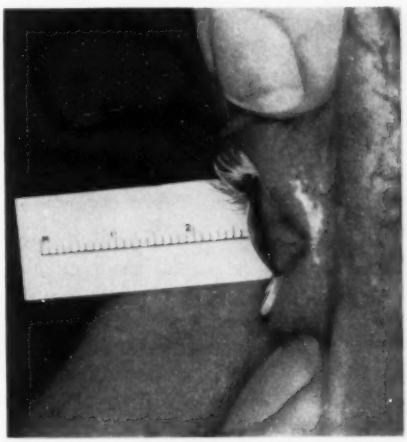


FIG. 12—Eye protruded about 4 mm. after a Valsalva maneuver.

he lay on his stomach, the eye was about 2 mm. less enophthalmic than when he was in the erect position. When he performed a Valsalva maneuver, the left eye protruded about 4 mm. (figs. 11 and 12). Compression of the carotid artery had no noticeable effect on the enophthalmos.

There were no other abnormalities of the left eye. No iris tumors were present. The ophthalmoscopic examination disclosed nothing of significance.

There were no other cutaneous manifestations of neurofibromatosis, such as café-au-lait spots or subcutaneous nodules elsewhere. We were not able to examine the members of the patient's family.

The chest roentgenogram was normal. There was no evidence of intrathoracic neurofibromas. Roentgenograms of the skull disclosed the bony abnormality that had been described previously. There was no change from previous roentgenographic examinations. Carotid angiography was performed and was interpreted as normal; there was no evidence of a carotid artery-cavernous sinus fistula. A pneumoencephalogram was normal.

DISCUSSION

Although Rockliffe and Parsons,[12] in 1904, reported the first case of ocular pulsation in association with neurofibromatosis, there are, surprisingly, at present only about 50 cases reported in the world literature. Since most of these have been reviewed in previous articles,[10,11] no review will be attempted in this paper. The etiologic relationship between neurofibromatosis and pulsating exophthalmos has recently been emphasized by the reports of Bruwer and Kierland[1] and Rovit and Sosman.[13]

In a typical case the diagnosis is relatively simple. The patient has a unilateral pulsating exophthalmos and the pulsation is synchronous with the radial pulse. No bruit is heard, either subjectively or objectively. The patient may have cutaneous manifestations of neurofibromatosis, or these may be present in members of his family. There is usually a thickening of the upper lid. Roentgenograms of the skull reveal a bony abnormality in which the greater and lesser wings of the sphenoid bone are absent, the ethmoid sinuses are small or absent, the pituitary fossa is enlarged, the orbital portion of the frontal bone is absent, and there is an outward bulging of the squamous portion of the temporal bone on the affected side.

Exophthalmos has occurred in a majority of the cases. Our case was unique in that enophthalmos was present. The exophthalmos may be due to either of two factors. In a few cases, a retrobulbar neurofibroma or an associated tumor, such as a glioma of the optic nerve, has been responsible for the proptosis. In the majority of the cases, however, as LeWald[9] first pointed out, there is a congenital defect in the bony orbit which permits a portion of the temporal lobe to protrude into the orbit. In the original case report of Rockliffe and Parsons,[12] the authors implied that the plexiform neurofibroma was responsible for the exophthalmos, but it is possible that this case also represents a maldevelopment of the bony orbit. The postmortem examination of their patient disclosed that the whole orbital plate of the frontal bone, the lesser and greater wings of the sphenoid bone, and the lacrimal plate of the ethmoid were missing.

The bony changes in neurofibromatosis were first emphasized by the report of Holt and Wright,[7] who reviewed a large series of patients with neurofibromatosis and found that 29 per cent had some form of bony defect, with congenital anomalies of bone being one of the more common. Crowe, Schull and Neel[2] pointed out that these bone changes were not pathognomonic, but they, too, were impressed by the frequency of these bone changes. They stated that "their frequent association with the cutaneous manifestations of the disease make a search for them mandatory when the diagnosis is in doubt." Holt and Wright[7]

suggest that, since neurofibromatosis is a hereditary disease resulting from a defect in the chromosomes and genes, associated congenital anomalies, such as a bony abnormality of the orbit, could be expected. Rovit and Sosman[13] felt that an aplasia of the sphenoid bone was the main developmental anomaly leading to this bony deformity. They postulated that the enlarged sella turcica was due to a lack of development of the body of the sphenoid rather than to an expanding intrinsic pituitary lesion. They felt that it was not possible to state whether the defect in the orbital plate of the frontal bone and the bulging of the temporal bone were primary aplastic defects, or whether they arose secondarily as a consequence of failure of the sphenoid bone to exert its influence.

The margins of the bony defect are clear-cut, which, as some investigators[8] have pointed out, contrasts with the ill-defined margins of bone defects produced by tumor erosion. Tumor infiltration, however, may sometimes result in sharply outlined bony defects, such as in an eosinophilic granuloma of the orbit.[6] Thus, this feature may not be too significant in a given case in which the edges of the bony defect are clear-cut.

One disturbing feature of our case was the absence of café-au-lait spots and subcutaneous nodules elsewhere in the body. Their absence, however, does not rule out a diagnosis of neurofibromatosis. Crowe, Schull, and Neel[2] found that 94 per cent of persons with proven neurofibromatosis had at least one café-au-lait spot. Since almost 10 per cent of a normal control group had from one to five café-au-lait spots, they felt that the presence of at least six of these spots, 1.5 cm. or larger, was necessary before a diagnosis of neurofibromatosis could be made. Using these more exacting criteria, only 78 per cent of the patients with neurofibromatosis had significant café-au-lait spots. Thus, while café-au-lait spots are common in these cases, they are not always present.

Ford[4] pointed out that "although café-au-lait spots and subcutaneous nodules are sometimes present in childhood, it is not unusual for these changes to become evident shortly after puberty and occasionally even to become apparent initially only in later life." In the series of Crowe and his colleagues,[2] only 50.9 per cent of the patients had café-au-lait spots in significant number and size by the age of 30. Thus, it is possible that our patient may fall into the small group of patients in whom café-au-lait spots do not develop or in whom they may appear later in life.

The presence of enophthalmos was an unusual feature of our case. In orbital fractures, especially those of the floor of the orbit, enophthalmos is a common feature. The enophthalmos is thought to be due both to a herniation of orbital fat into the maxillary sinus and to a post-traumatic atrophy of the orbital fat. It is possible that in our case, because of trauma, there was an absorption of orbital fat; therefore, enophthalmos rather than exophthalmos prevailed. Obviously, this can neither be proved nor disproved.

We believe that the ocular pulsation was due to transmission of the cerebral pulsation through the defect in the bony orbit. This is borne out by the presence of a negative angiogram, the absence of a bruit, a demonstrable bony defect and the fact that the enophthalmos decreased on a Valsalva maneuver and depression of the head and increased when the patient lay on his back.

Although it is not possible to rule out a comminuted fracture of the sphenoid bone with spontaneous absorption of bone, it seems more likely that our case represents the type of bone defect that occurs as an associated congenital lesion in neurofibromatosis. The fact that the

histologically proven neurofibromas of the eyelid preceded the trauma, the bony defect and the enlarged sella turcica would serve as etiologic evidence. However, other than the neurofibromas of the upper eyelid, no other stigmata of neurofibromatosis could be demonstrated.

SUMMARY

A case of ocular pulsation has been reported in which enophthalmos was present when the patient was in the erect position. Exophthalmos is usually present with ocular pulsation due either to a defect in the bony orbit associated with neurofibromas or to a traumatic hiatus of the bony orbit. We believe that the enophthalmos may be the result of an atrophy of the orbital fat due to trauma. If the patient had not had an orbital injury, exophthalmos, rather than enophthalmos, would probably have prevailed.

ACKNOWLEDGMENT

The author would like to thank Dr. Lorenz Zimmerman, Chief of Ocular Pathology at the Armed Forces Institute of Pathology, for his interpretation of the histologic material; Lt. Colonel L. C. Hamilton, Chief of Diagnostic Radiology at Walter Reed General Hospital, for the interpretation of the radiologic material; and Miss Wanda Burnett, Medical Editor, Walter Reed General Hospital, for her editorial assistance, and would also acknowledge the assistance of Captain Gerald Druckery.

REFERENCES

1. Bruwer, André J., and Kierland, Robert: Neurofibromatosis and congenital unilateral pulsating and nonpulsating exophthalmos, Arch Ophthal, 53:2-11 (Jan.) 1955.
2. Crowe, Frank W.; Schull, William J., and Neel, James V.: A Clinical Pathological and Genetic Study of Multiple Neurofibromatosis, Springfield, Ill., Charles C Thomas, 1956.
3. Duke-Elder, Stewart: Text-Book of Ophthalmology: The Ocular Adnexa (vol. 5), ed. 1 London, Henry Kimpton, and St. Louis, C. V. Mosby, 1952.
4. Ford, Frank R.: Diseases of the Nervous System in Infancy, Childhood and Adolescence, ed 3, Springfield, Ill., Charles C Thomas, 1952, vol. XIV, p. 931.
5. Goodhart, S. Philip, and Balser, Benjamin H.: Neurological Cinematographic Atlas, King's Crown Press, 1944, p. 49.
6. Hayes, George: Personal communication.
7. Holt, John F., and Wright, Edwin M.: The radiologic features of neurofibromatosis, Radiology, 51:647-663, 1948.
8. Langmaid, Charles, and Daws, Alex: Pulsating exophthalmos in von Recklinghausen's disease, J Neurol Neurosurg Psychiat, 21:42-46 (Feb.) 1958.
9. LeWald, Leon T.: Congenital absence of the superior orbital wall associated with pulsating exophthalmos: report of four cases, Amer J Roentgenol, 30:756-764, 1933.
10. Petit-Dutaillis, D.; Feld, M., and Taptas, J.: Les exophthalmies unilaterales par malformation orbitaire dans la maladie de Recklinghausen, Rev Neurol (Par) 81:203-211, 1949.
11. Peyton, William T., and Simmons, Donald R.: Neurofibromatosis with defect in wall of orbit: report of five cases, Arch Neurol Psychiat, 55:248-265, 1946.
12. Rockliffe, W. C., and Parsons, J. Herbert: Plexiform neuroma of the orbit, Path Soc London Trans, 55:27-39, 1903-1904.
13. Rovit, Richard L., and Sosman, Merrill C.: Hemicranial aplasia with pulsating exophthalmos: an unusual manifestation of von Recklinghausen's disease, J Neurosurg, 17:104-121, 1960.
14. Stout, Arthur P.: The peripheral manifestations of the specific nerve sheath tumor (Neurilemmoma), Amer J Cancer, 24:751-796 (Aug.) 1935.
15. Travers, Benjamin: A case of aneurism by anastomosis in the orbit, Med Chir Trans (London) 2:1-16, 1811.
16. Walsh, Frank B.: Clinical Neuro-Ophthalmology, ed. 2, Baltimore, Williams and Wilkins, 1957.

DR. WALSH

THE case report Dr. Dabezies has given is interesting and his comments are instructive. I enjoyed studying the patient with him.

Trauma was considered as a possible cause in this case of pulsating enophthalmos and neurofibroma. Since tissue removed from the eyelid supported the diagnosis of neurofibromatosis, it seems unlikely that trauma was the etiologic factor, unless one accepts the concept that trauma can be responsible for the development of tumor. In this regard it is of interest that Cushing and Eisenhardt[2] considered a history of antecedent trauma as important in 33 of 313 patients with meningioma. Sir Francis Walshe described such cases in a relatively recent lecture at the Johns Hopkins Hospital. The concept of trauma and cerebral tumor is remarked upon by Russell and Rubinstein,[5] and opinions for and against the concept are stated rather fully by Henschen.[3]

When Dr. Dabezies and I saw his patient, we were impressed by pulsation occurring in an enophthalmic eye, and considered it as quite unusual. Dr. Dabezies has commented upon the paucity of reports concerning this phenomenon. On reconsideration, several questions have come to my mind: Is pulsating enophthalmos actually as rare as reported cases would suggest? What is the relationship between pulsating exophthalmos and pulsating enophthalmos, and between exophthalmos and enophthalmos in the absence of pulsation? Observations on cases personally observed provides at least partial answers to these questions.

Pulsating enophthalmos in all probability is not as infrequent as is thought. Pulsation of an eyeball is visible and palpable in some instances when these features are overlooked. I am confident that I have not recognized its presence in several instances when the amplitude of pulsation was small, and I admit freely that I have difficulty with palpable pulsation. The essayist has properly emphasized the significance of absence of bruit as differentiating between an arteriovenous fistula and ocular pulsation associated with defects in the orbital bones. If in Dr. Dabezies' case the ocular pulsation resulted from defects in the bony orbit, then it would seem that such defects, from whatever cause, might produce ocular pulsation. The following history of a case of pulsating enophthalmos is that of a patient who suffered from cavernous angioma involving the right upper eyelid, conjunctiva and orbit and who had a right sixth nerve palsy.

M. E. R. (82 35 30), a woman 67 years of age, complained of defective vision in the left eye four months prior to examinations made in October 1958. The vision of the right eye had been defective for nine years. The patient described ringing in the ears as an occasional occurence, also transient spells of dizziness. She was aware of having had high blood pressure since the onset of menopause, and recalled one reading of 210/110. Fainting spells had occurred occasionally since she was 20 years old, the last one a year before we saw her. During such a spell she would fall to the ground but she never hurt herself; someone was invariably present. She conversed during the spells, which lasted only a few moments; there were no clonic or tonic movements; there was no tendency to sleep following a spell.

She stated that a blood-vessel growth had involved the right upper eyelid from the time of birth. She had occasional pains in and about the eye not related to changes in position, coughing or excitement. She recalled that the right eye would protrude on occasions so that the closed right eyelid would touch the back of her eyeglass. She was confident that until the time of menopause the right eyeball was at least as prominent as the left. Since that time the tumor involving the upper eyelid became smaller, and the eye had sunk back-

ward into the orbit, according to her story.

In 1934 a small warty growth had been removed from the margin of the right upper eyelid. Following this procedure the eyelid had become thicker and more ptosed so that soon it almost completely covered the eye. Since 1949 the vision in the right eye had gradually decreased, and it had been essentially sightless for several years when we first saw her.

The family history was not important to the case.

Large dilated veins were present over the upper and lateral aspects of the right orbit with an angiomatous mass extending into the upper eyelid and downward into the palpebral and bulbar conjunctivas. The right eye was enophthalmic with the patient in the sitting position. With the exophthalmometer set at 95 mm., in sitting position, the measurement for the right eye was 11 mm. and for the left, 13.5 mm.; in a reclining position, for the right eye, 17 mm. and for the left eye 13 mm. There was pronounced loss of intraorbital tissue on the right. The right eyeball pulsated simultaneously with the radial pulse, and the amplitude was small. The upper eyelid was thick and ptosed. Pressure on the right jugular vein produced proptosis and venous engorgement of the right eye. When the patient reclined, the enophthalmos disappeared and was replaced by exophthalmos. In the sitting position, rotation of the head to the right, left or backwards did not produce exophthalmos. The right eye could not be adducted, but other movements were full. The pupil was normal. No bruit was heard.

In the right eye, vision was reduced to counting fingers only in lower visual field. In the left eye, vision was 20/15 with correction.

Ocular tension was 16 mm. Hg (Schiøtz) for each eye.

Ophthalmoscopic examination revealed hazy media bilaterally. There was extreme pallor of the right disc, which was deeply cupped. The left fundus was essentially normal. Roentgenographic examination (in part): osteolytic lesions right frontal bone, right orbital roof and lesser sphenoid wing.

In the interest of the patient, no further studies were made. I am quite sure that members of the audience have observed cases similar to that described here.

It would seem important in this case, as well as in that reported by Dr. Dabezies, to consider the possibility of intermittent exophthalmos. In my first case of true intermittent exophthalmos, ocular pulsation was a feature and the bony orbit was essentially normal. The left eye was enophthalmic when the patient was sitting or standing; when she was recumbent it was exophthalmic. The change from exophthalmos to enophthalmos occurred very rapidly, almost fully within a second or two after the sitting or standing position was obtained after she had been lying down. Ocular pulsation was present when the eye was exophthalmic but no bruit was heard at any time. The pulsations of the eye ceased when the carotid on the left was manually obstructed in the neck. It seemed that the enophthalmos in this patient was due to absorption of orbital fat, and that in some manner the posterior orbit must be filled (or emptied) with blood according to the position of the patient. Dr. Dandy[6] found a large vascular abnormality situated over the region of the superior orbital fissure. Dr. A. Earl Walker and I studied a similar case.

There are many case reports on intermittent exophthalmos although the mechanism responsible for it has been demonstrated infrequently. Ocular pulsation is not uncommonly observed in such cases. In all of them, enophthalmos alternates with exophthalmos.

It would seem that pulsating enophthalmos may be explained on the basis of diminution in the orbital content in large part. Other factors may be the absorption of orbital fat, a defect in the orbital bony structure, or the presence of abnormal vascular channels such as observed in cases described as intermittent exophthalmos.

In pulsating exophthalmos associated with carotid-cavernous fistula, the for-

ward position of the affected eye cannot be materially altered by change in the position of the patient's head, and such a proptosed eye cannot be shoved backward into the orbit. Birch-Hirschfeld,[1] who studied extensively the anteroposterior position of the eyes in normal individuals and in disease states, observed enophthalmos as the end stage in an individual who had suffered from carotid-cavernous fistula; there had been spontaneous development of thrombosis. Such an occurrence must be extremely rare.

Enophthalmos which has originated in trauma is seen frequently. If pulsation of the eyeball occurs in such cases, it does so rarely. In individuals subjected to orbital decompression by removal of the orbital roof, ocular pulsation has been observed in some instances; in others it may have been present but overlooked. Rovit and Sosman[4] recently remarked upon ocular pulsation after unilateral and after bilateral radical procedures for the relief of exophthalmos.

REFERENCES

1. Birch-Hirschfeld: In Schieck, Franz, and Brückner, A.: Kurzes Handbuch der Ophthalmologie, vol. 3, Berlin, Julius Springer, 1930, pp. 20-25.

2. Cushing, Harvey W., and Eisenhardt, Louise: Meningiomas, Their Classification, Regional Behaviour, Life History, and Surgical End Results, Springfield, Ill., Charles C Thomas, 1938.

3. Henschen, Folke: Tumoren des Zentralnervensystems und seiner Hüllen, Handbuch der speziellen Pathologischen Anatomie und Histologie (Henke-Lubarsch) vol. 13, pt. III, pp. 636-639, 1955.

4. Rovit, R. L., and Sosman, M. D.: Hemicranial aplasia with pulsating exophthalmos: an unusual manifestation of von Recklinghausen's disease, J Neurosurg, 17: 104-121, 1960.

5. Russell, Dorothy S., and Rubinstein, L. J.: Pathology of Tumours of the Nervous System, London, Edward Arnold, 1959.

6. Walsh, Frank B., and Dandy, Walter E.: Pathogenesis of intermittent exophthalmos, Arch Ophthal, 32:1-10 (July) 1944.

CHONDROSARCOMA OF THE ORBIT

MONTE G. HOLLAND, M.D.
JAMES H. ALLEN, M.D.
and
HERBERT ICHINOSE, M.D.
BY INVITATION
NEW ORLEANS, LOUISIANA

CHONDROSARCOMAS of the orbit are rare,[4] since only two were found in several reviews[2,5,8,13,17] of orbital tumors. Both of these, however, involved the orbit secondarily. Since there are only five cases of primary orbital chondrosarcoma recorded in the literature[7,12,16,18,19] the following two cases are being reported.

CASE REPORTS

Case I

F. S., a 4-year-old Negro male was admitted to the hospital because of a "bulging right eye." He had been in good health until about four months prior to admission, when his mother noticed a protuberant right eye. There were no other symptoms.

The physical examination, aside from the ocular findings, was entirely normal. The visual acuity was normal in each eye. There was exophthalmos of the right eye with lateral displacement of the globe; the distance from the internal canthus to the midline of the nose was noticeably greater, causing a conspicuous asymmetry (fig. 1). On palpation of the orbit, a hard, nontender mass was felt in the region of the ethmoid. The external, biomicroscopic and ophthalmoscopic examinations were normal. The left eye and adnexae were not remarkable.

Roentgenograms of the orbits and sinuses revealed a destructive lesion of the right ethmoid and orbit (fig. 2). Roentgenograms of the chest, long bones, kidney, ureter, and bladder were normal, as well as were the results of an intravenous pyelogram. A complete blood count and urinalysis were within normal limits. A sickle-cell preparation and first strength tuberculin (PPD) test gave negative results. An examination of the nasopharynx disclosed a 1 by 1 cm. pink tumor in the central one third of the roof of the right side of the nose. Histopathologic examination of a specimen removed for biopsy revealed the tumor to be a chondrosarcoma,

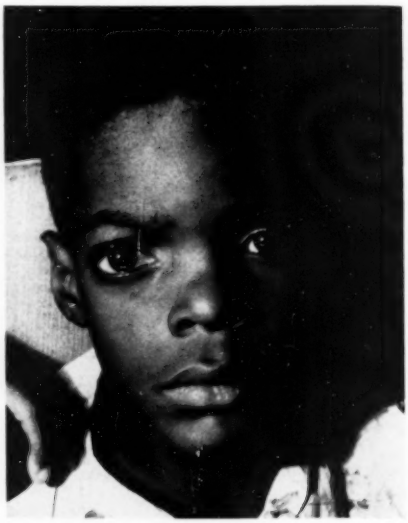


FIG. 1—Case I. The right eye is displaced forward and laterally by a tumor mass in the ethmoid.

From the departments of Ophthalmology and Pathology, Tulane University Medical School, New Orleans, Louisiana.

Presented at the Sixty-Fifth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 9-14, 1960, Chicago.

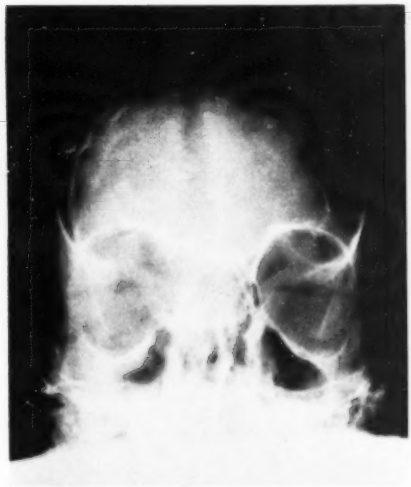


FIG. 2—Case I. Waters' view of the paranasal sinuses showing almost complete replacement of ethmoid air cells by calcified tumor mass.

and an orbital exenteration and partial maxillectomy were performed. During the operation it was seen that the tumor had originated from the ethmoid cells and involved the dura and anterior cranial fossa. The tumor appeared as though it had decompressed itself into the nose, anterior cranial fossa and orbit.

Roentgen therapy was instituted postoperatively. At the time of the last evaluation, fourteen months after excision of the tumor, there was no evidence of recurrence.

Pathology:

On microscopic examination the tumor was seen to extend between spicules of pre-existing bone and lay, in part, just beneath intact respiratory epithelium. It consisted of multiple nodules of neoplastic cartilage blending into loose cellular mucoid stroma (fig. 3). Within the tumor mass, occasional deposits of amorphous calcium were present adjacent to spicules of poorly formed bone. Cells with two or more nuclei were seen frequently but mitotic figures only rarely (fig. 4).

Case II

C. S., a 9-year-old Negro female entered the hospital complaining of a bulging right eye. The patient had been well until three weeks prior to admission, when she awoke one morning with the prominent right eye. There had been no pain, diplopia, redness or other significant complaints.

Visual acuity was normal in each eye. There was marked exophthalmos of the right eye,

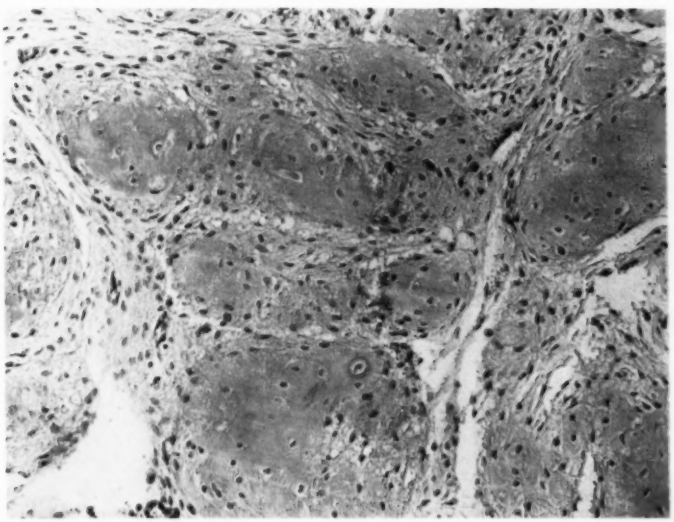


FIG. 3—Case I. Multiple nodules of neoplastic cartilage blending into loose undifferentiated mucoid stroma. (Hematoxylin and eosin; × 160.)

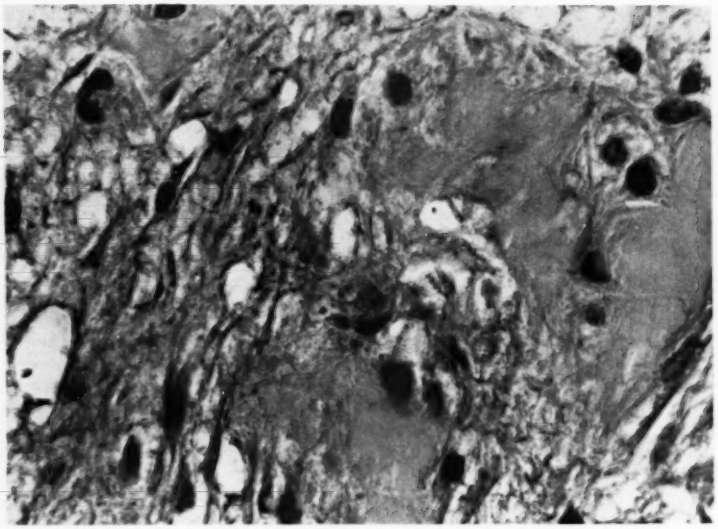


FIG. 4—Case I. High power view of a more anaplastic portion of the tumor illustrating fibrillar component. Three small nodules of poorly formed neoplastic cartilage matrix on the right and a binucleate cell in the left upper corner. (Hematoxylin and eosin; × 650.)

which appeared to be displaced forward and downward (fig. 5). The orbital resiliency was reduced. There was slight paresis of the right superior rectus muscle noticeable in the end position of gaze. Ophthalmoscopic examination showed slight retinal venous distension. The pupils reacted to light, directly and consensually, and to the near reflex. Intraocular pressure was 17 mm. Hg in the right eye and 18.3 mm. Hg in the left. The visual field examination disclosed no abnormalities.

The general physical examination was normal except for slight generalized lymphadenopathy.

Roentgenograms of the skull and orbits demonstrated a densely calcified tumor arising

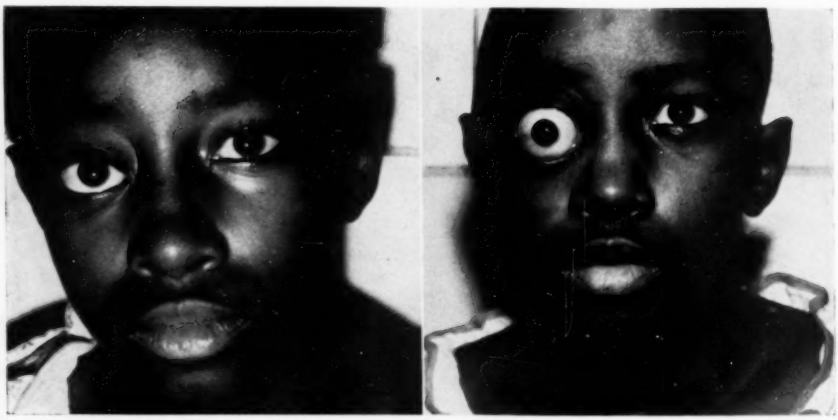


FIG. 5—Case II. (Left) Appearance on admission. (Right) Appearance three months later.

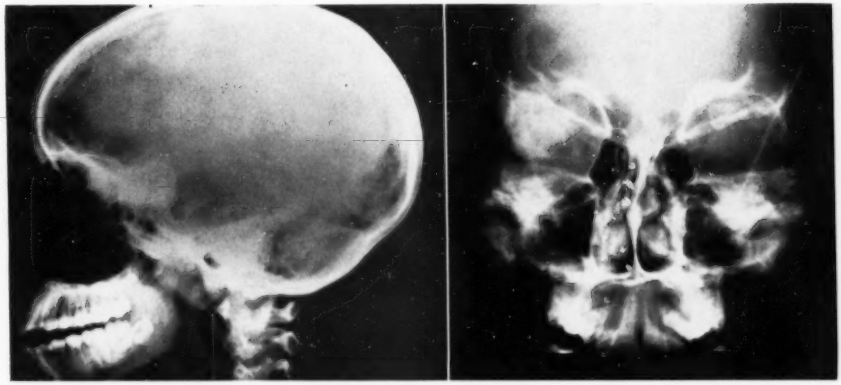


FIG. 6—Case II. Posteroanterior and lateral views of the skull showing densely calcified tumor arising from the lateral portion of the greater wing of the sphenoid on the right.

from the lateral portion of the greater wing of the right sphenoid and involving both the orbit and cranium (fig. 6). A complete blood count showed 10,800 white blood cells, with a normal differential and hemoglobin. Results of bone marrow biopsy were normal and the first-strength tuberculin (PPD) test gave negative results.

Two weeks after admission the patient complained of right temporal pain and a soft tissue mass in the right temporal region was discovered. Carotid angiograms were normal.

The proptosis gradually increased as well as the extent and density of the lesion visualized by roentgenography. Neurosurgical exploration was made. A firm gray mass was seen invading the posterior wall of the orbit and extending through the greater wing of the sphenoid and into the temporal bone, muscle, and fascia, as well as into the frontal bone.

FIG. 7—Case II. Highly cellular neoplastic cartilage with occasional vascular spaces. (Hematoxylin and eosin; × 130.)

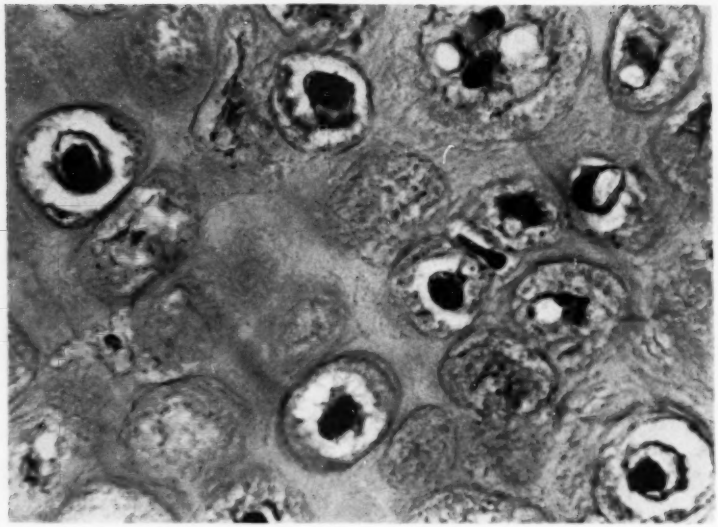


FIG. 8—Case II. High power view showing moderately large, hyperchromatic nuclei with cellular vacuolization and degeneration, variation in shape, and binucleate cell at the lower margin. (Hematoxylin and eosin; × 650.)

Because of the extent of the lesion, a complete excision was not possible.

Roentgen therapy was given postoperatively, but the proptosis progressed unremittingly, leading to extreme pain and corneal ulceration and necessitating an enucleation. Histopathologic examination of the eye demonstrated it to be free of tumor.

At the last follow-up visit, approximately one year after the operation, the mass of tumor on the patient's forehead was enlarging progressively and the prognosis was poor.

Pathology:

Microscopic examination revealed masses of fairly well differentiated but highly cellular neoplastic cartilage with lacunae situated close together (fig. 7). There was considerable variation in the size and shape of the nuclei and many cells were binucleate (fig. 8).

REVIEW OF THE LITERATURE

In 1896, Morton[12] reported one of the earliest cases of chondrosarcoma of the orbit. The patient was an 18-year-old white male in whom symptoms appeared four months prior to consultation. The tumor involved principally the left orbit, all of the nasal accessory sinuses, and eventually the brain. The left nasal passage was filled with "a mass of purulent debris" which protruded from the anterior naris (compare with *Case I* of this report). Postmortem examination revealed very extensive local infiltration of the tumor, but no distant metastases. Microscopic examination revealed a chondrosarcoma or "myxochondroma tending to become sarcomatous." In older portions of the tumor there were areas of newly formed bone.

Hirsch[7] recounted the history of a 55-year-old white male who developed a chondrosarcoma in the region of the right lacrimal sac, in which chronic infection had necessitated surgical excision. The tumor eventually spread to the orbit, antrum, sphenoid, ethmoid, and into the base of the brain.

Werncke[19] summarized a report by Pokrowsky in the Russian literature of

a 35-year-old patient with a tumor of the right orbit of three years' duration. It was sharply demarcated and did not hinder ocular movements. Histopathologic examination disclosed a chondrosarcoma alleged to have originated from the periosteum of the ethmoid.

A myxochondrosarcoma of the orbit, probably arising in the orbital plate of the frontal bone, in an 11-year-old female was described by Van Duyse.[18] Histologically, the tumor showed successively a hyaline cartilaginous, fibrous connective, myxomatous, and chondro-osseous nature. The tumor recurred after local excision and orbital exenteration was required. The published drawings of the microscopic examination of the lesions are characteristic of chondrosarcoma.

Pinho[16] reported a chondrofibrosarcoma of the right orbit in a 3-year-old female patient.

Ingalls[8] described a case of chondrosarcoma which arose in a chondroma of the mandible and extended to involve the orbit.

O'Brien and Leinfelder[13] reported a case of chondromyxoma of the orbit in an elderly woman whose presenting complaints were unilateral proptosis, nasal obstruction on the same side and recurrent epistaxis. There was a firm, easily bleeding mass in the nose which apparently extended into all the sinuses of the right side. Roentgenograms showed a destructive process involving the right orbit and sinuses.

Case 36 of O'Neal and Ackerman[14] involved the left orbit secondarily from a primary site in the hard palate.

Ash[1] cited two examples involving the orbit. In one, a chondrosarcoma arising from the glabellar region in an elderly female eventually involved both orbits and extended into the cranium, without, however, metastasizing. The other, in a 54-year-old male, involved the maxilla, posterior nares, left orbit and nasopharynx and eroded into the cranial cavity. There was no metastasis. "A nasal tumor was removed in 1947 and diagnosed as osteo-chondroma; in 1951 as chondrosarcoma." The histopathology was that of a well-differentiated chondrosarcoma.

DISCUSSION

Generally speaking, chondrosarcomas are relatively common primary malignant tumors of bone; in fact, if osteogenic sarcomas are excluded, they are the most common, comprising 10 per cent of all primary osseous tumors.[3] The most frequent sites of origin are the long bones, rib cage, and pelvic girdle. The soft tissues of the extremities, scapula, short tubular bones and maxilla are less common sites of origin, and it is "exceedingly rare" in orbital bones.[4] Chondrosarcomas occur most commonly in persons 30 to 60 years old.[3] The question of sex predilection does not appear to have been settled. In one series the sexes were equally affected, whereas in others, males were more commonly affected than females.[3,9,14] The clinical course may be rapid, but usually it is slowly progressive and is characterized by extensive local invasion and proliferation.[9,11] The histologic criteria for malignancy have been well defined by several authorities[9,10,11,14] and are based mainly on the nuclear morphology. Since it is well known that chondrosarcomas may show areas of myxomatous change, focal ossification and fibrosarcomatous regions, it was decided that whenever the cartilaginous element predominated in tumors of this general type, they were best designated simply as chondrosarcoma, rather than by compound terms sometimes employed (e.g., chondro-

myxo-fibrosarcoma). The case of Goldstein and Wexler[6] was therefore excluded from the group, since the dominant element in this tumor was not cartilaginous.

It is, of course, hazardous to base generalizations concerning the characteristics of primary chondrosarcoma of the orbital bones on the small number of cases collected here, especially since most of the reports give insufficient information on many important points. However, the following general impressions are offered, based on the aggregate of information presently available.

Primary chondrosarcoma of the orbit, like other orbital sarcomas, appears to have no sex predilection and affects two age groups, under 20 years and over 50 years, although Pokrowsky's case appears to be an exception. The precise site of origin of the primary tumor was not ascertainable in most reported cases; however, the superior and lateral portions of the orbit appear to be least frequently involved.* Extension into the cranial vault, sinuses, and the nasal cavities was a common occurrence. The absence of distant metastatic foci in the reported cases is noteworthy. Follow-up reports of cases in the literature are insufficient to make a firm statement regarding over-all prognosis. However, the reported deaths, together with those cases of intracranial extension, indicate an unfavorable prognosis.

Little can be said about the histogenesis of chondrosarcomas. They have been observed to arise in pre-existing enchondromas or osteochondromas of long bone, but this is apparently uncommon except when the benign lesions are multiple. Chondromas rarely arise in orbital bones.[2]

*See, however, Van Duyse,[18] and Case II in this report.

SUMMARY AND CONCLUSIONS

1. Two cases of primary orbital chondrosarcoma are presented, thereby bringing the total of reported cases to seven.

2. On the basis of this small group of cases, it may be tentatively concluded that orbital chondrosarcomas, like other orbital sarcomas, have no sex predilection and affect predominantly patients under 20 or over 50 years of age. They may manifest themselves clinically by unilateral exophthalmos with nasal obstruction. Characteristically they do not metastasize but show massive and destructive local invasion into the floor of the cranium and thus carry a poor prognosis.

REFERENCES

1. Ash, James Earle, and Raum, Muriel: An Atlas of Otolaryngic Pathology, ed. 1, Washington, D. C., Amer Acad Ophthal Otolaryng, Amer Reg Path, Armed Forces Inst Path, 1956, pp. 282-283.

2. Birch-Hirschfeld, A.: Graefe-Saemisch Handbuch der gesamten Augenheilkunde, 2 auf., Leipzig, W. Englemann, 9 bd., 1 abr. 1 Teil, S. 832, 1920.

3. Dahlin, David C., and Henderson, Edward D.: Chondrosarcoma, a surgical and pathological problem: review of 212 cases, J Bone Joint Surg (Amer), 38:1025-1038 (Oct.) 1956.

4. Duke-Elder, Stewart: Text-Book of Ophthalmology: The Ocular Adnexa (vol. 5), Mosby, 1952, p. 5541.

5. Forrest, Arnold W.: Intraorbital tumors (ophthalmologic reviews), Arch Ophthal, 41:198-232, Feb. 1949.

6. Goldstein, Isadore, and Wexler, David: Tumor of orbit in case of osteochondrofibrosarcomatosis, Arch Ophthal, 12:201-206 (Aug.) 1934.

7. Hirsch, G.: Zwei fälle von exophthalmus: 1. Sarcoma orbitae 2. Hämorrhagia retrobulbaris, Arch Augenheilk, 45:283-291, 1902.

8. Ingalls, Raymond G.: Tumors of the Orbit, ed. 1, Springfield, Ill., Charles C Thomas, 1953, p. 323.

9. Jaffe, Henry L.: Tumors and Tumorous Conditions of the Bones and Joints, ed. 1, Philadelphia, Lea and Febiger, 1958.

10. Keiller, V. H.: Cartilaginous tumors of of bone, Surg Gynec Obstet, 40:510-521 (April) 1925.

11. Lichtenstein, Louis, and Jaffe, H. L.: Chondrosarcoma of bone, Amer J Path, 19:553-589 (July) 1943.

12. Morton, H. McI: Primary sarcoma of the orbit, with extensive infiltration into the adjacent sinuses, New York J Med, 63:508-509 (April) 1896.

13. O'Brien, C. S., and Leinfelder, P. J.: Unilateral exophthalmos, Amer J Ophthal 18:123-132, 1935.

14. O'Neal, Lawrence W., and Ackerman Lauren V.: Chrondrosarcoma of bone, Cancer, 5:551-577 (May) 1952.

15. Phemister, D. B.: Chrondrosarcoma of bone, Surg Gynec Obstet, 50:216-233, 1930.

16. Pinho, Edison: Glioma da retina. Condrofibro-sarcoma da orbita, Arq Bras Oftal, 2:233-234 (Oct.) 1939.

17. Reese, Algernon B.: Orbital tumors and their surgical treatment, Amer J Ophthal, 24:386-394, pt. 1, 1941.

18. Van Duyse: Myxochondrome sarcomatode de l'orbite, Arch Ophtal (Par), 33: 529-538 (Sept.) 1913.

19. Werncke, T.: Bericht ueber die russische Literatur, Z Augenheilk, 32:401, 1914.

HOW MUCH TRAINING IN RESEARCH SHOULD BE A PART OF GRADUATE TRAINING?

WILLIAM L. BENEDICT, M.D., MODERATOR
ROCHESTER, MINNESOTA

A SECTION on Teaching was authorized by the Council of the American Academy of Ophthalmology and Otolaryngology in 1930 on a resolution by a group interested in teaching. The subject was discussed at an informal evening meeting and a resolution drawn up and signed by nine members, only two of whom, Arthur Bedell and Arthur Proetz, still survive. The resolution called upon the Council to appoint the necessary officers or committeemen to form such a section, the rules and regulations adopted and approved by the Council for the administration of such a section; and necessary finances provided for the formation and functioning of such a section.

The following year (1931) a Teachers Section session was held on Thursday afternoon of the annual meeting. Dr. W. P. Wherry led the discussion with a dissertation, "Purpose of Teachers Sections." (TRANSACTIONS, American Academy of Ophthalmology and Otolaryngology, 1931, pages 359-364.) Dr. Wherry presented a "plan of organization, a plan of activity and suggestions for commissions." His plan was endorsed by a number of speakers who followed in the discussion and by resolution the plan was recommended to the Council for adoption. The Council adopted it.

In 1934 the Teachers Section held a dinner meeting in the Empire Room of the Palmer House in the form of a panel discussion on Graduate Medical Education. The Teachers Section was reorganized according to the wishes of those interested and made an integral part of the general organizational plan.

It will be of interest to recall that up to that time, graduate medical education in ophthalmology and otolaryngology was entirely on an apprenticeship basis. There was no organized curriculum. Instruction was given for a fee in a few hospitals and medical schools in courses lasting from two to twelve weeks. Instruction was comprised of some lectures and demonstrations but mostly of supervised clinical practice. It was so unsatisfactory that in New York and Philadelphia short courses were abolished and teachers planned graduate instruction on a college basis. At the 1936 meeting, the theme of the Teachers Section was Basic Sciences—should they be taught in graduate schools and should nine months of study in basic sciences be required. Dr. Dean Lierle spoke on the subject "The Amount of Training in the Basic Sciences of Otolaryngology that Each Intern Must Receive." The basic sciences referred to were anatomy, physiology and bacteriology. Dr. C. S. O'Brien, also of Iowa University, discussed the same subject from the standpoint of the ophthalmologist.

A new era of medical education was born in the middle thirties when grad-

Presented as a *Special Program* by the Teachers Section: Ophthalmology at the Sixty-Fifth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 9-14, 1960, Chicago.

uate medical schools were established in most universities and developed into major projects. Faculties had to be increased and rooms, equipment and facilities provided.

All were expensive additions. They could not be provided in some institutions. Dr. Joseph Beck said that in his institution there was no money for graduate courses. However, there was private instruction for a few office assistants and the idea of graduate education flourished. Part of the impulse to develop good graduate teaching was stimulated by the Boards. Certification of specialists by examining and certifying bodies had been going on for a decade and it was apparent to all that better teaching was required if candidates from many schools were to be adequately prepared to meet Board standards. Now, thirty-five years later, we are discussing graduate medical education with more fervor than ever. The three years of training arbitrarily set up by Boards has been generally accepted as the standard for all schools and most specialties. The necessary teaching facilities have been provided and faculties augmented. Board requirements have stabilized the programs and money has been provided for faculty and students.

Recently, within the past decade, government grants-in-aid for medical research have done more for medical education than any one thing since the land grants. Grants-in-aid for research in basic sciences pertaining to ophthalmology and otolaryngology are available from the National Institute for Neurological Diseases and Blindness (NINDB) with assurances of seven or more years of continuous support. Training grants are available for graduate students in basic sciences and also in clinical investigation with the hope that some students will enter the teaching profession or continue in academic institutions as research investigators and directors.

The recruitment of students for basic research in face of a declining number of medical school applicants and the remunerative prospects of private practice for certificated specialists poses a problem that money alone will not solve.

The medical school graduate who elects to take graduate work in one of the specialties has a number of choices, which affords a highly competitive situation. Board certification requires three to five years of study and specialized training before any earned monetary return can be expected. Of those who elect to take up ophthalmology or otolaryngology, some will be interested only in clinical practice. A few will have had a background in science that can be further applied in the special fields of optics, acoustics or pharmacology and will emphasize that feature of their residency while preparing for Board examination. But until that barrier is crossed, the students are pretty well regimented. Not all graduate students are subsidized. Scholarships provide help for a few; public health grants help a few more; but most of them must provide their own support and compete with those who are supported by grants and loans.

How is this situation handled in the school and teaching hospital? What inducements are held out to the medical undergraduate to enter a given specialty, and what are the probabilities that he will succeed better in one institution than another?

Dr. Julius B. Richmond in the *Report of the First Institute on Clinical Teaching* has this to say:

> In terms of objectives, a considerable shift has taken place in recent years, often without explicit recognition. Several decades ago we might have defined the objective of a medical school as the graduation of general prac-

titioners to serve the community. From this singular objective, we have moved into an era in which medical school graduates pursue a diversity of occupations, ranging from a sociologically oriented occupation, such as planning medical care programs, to the highly technical surgical skills. This trend, which includes lengthy postgraduate experience, along with the increasingly larger body of knowledge in human biology presented to the medical student, has pushed his program into the pattern of a generic rather than a terminal education.

If medical education is to be a generic education, it will necessarily move toward a greater emphasis on fundamentals and less toward the practical. It will become more closely identified with all of higher education.

How much of this is necessary for the average practitioner who subsists on fees for his services? How much time and money can a doctor of medicine spend on training in a specialty when much of the business is being taken over by technically trained laymen who skim off the cream, leaving only the rare and difficult cases for the completely trained man?

Under these circumstances are our training centers in balance with the sociological opportunities for practice of ophthalmology and otolaryngology? Are the needs of the population provided by the schools they are taxed to support? What must be done to provide enough clinical ophthalmologists to meet the demand? Should certification in ophthalmology be modified to permit a wider choice of study in the preparatory years?

These and many similar questions are being discussed in forums of teachers and lay people interested in care of the sick. Our own problems are peculiar because in the fields of sensory diseases the technical advances are coming so fast that no one can keep up with them. Diversification is fading and keener concentration on single phases of a limited specialty are even now exposing the inadequacy of our present programs. Today we have invited three distinguished ophthalmologists, who are in a position to appreciate the situation and the remedy, to give us their views briefly. At the conclusion of the discussion they will welcome questions from the floor.

MICHAEL J. HOGAN, M.D.
SAN FRANCISCO, CALIFORNIA

I shall start this talk with a quotation from a report to the Neurology Training Grant Committee to the National Advisory Neurological Diseases and Blindness Council on June 27, 1960:

We consider it to be the chief objective and responsibility of those individuals who hold academic appointments in our medical schools, or who serve other medical schools in a comparable manner, to (1) add to our present store of scientific knowledge, (2) integrate new discoveries with the existing body of knowledge, (3) pass on this knowledge to the students, who, hopefully, will become the academicians of tomorrow, and (4) suggest the early application of medical knowledge wherever it has a bearing on the care of the sick. . . . We believe medical progress will be secure and hastened to the extent that we succeed in linking to the discovery of new knowledge through research, its dissemination through teaching, and, with the least possible delay, its application to the betterment of patient care.

This is the commandment of teaching, and the teacher who fails to prepare himself, or maintain himself in a position to carry out these precepts is not faithful to his calling. It is essential that we who are in teaching positions never lose sight of our obligation to the medi-

Department of Ophthalmology, University of California School of Medicine, San Francisco.

cal and graduate students, and to research, otherwise, teaching becomes static, monotonous, repetitive, and the quality of the product deteriorates. Eventually this leads to poorer patient care, and should be avoided. This failure in quality of medical care as a result of lack of research has been seen in a number of countries during the past two generations.

I certainly hate to dig back even into the recent history of a subject of this type, because it recalls to me that I have lived sufficiently long to see a considerable number of changes in ophthalmologic teaching and practice. Nevertheless, it is pleasant to reflect on, and I can't but think how exciting it has been to witness the tremendous changes which have occurred in medicine between 1925 and 1960. We who have lived through it have been fortunate indeed.

Originally in this country a few ophthalmologists were trained by spending one or more years at a university or private eye hospital under a group of teachers who had received their training in a European center. Other ophthalmologists received their training through preceptorships. Many spent from three to six months taking short courses in various European clinics, following which they hung their "shingle" as specialists.

The American Board of Ophthalmology was established in 1918. The board examination eventually effected considerable change in the concepts of teaching in ophthalmology, and resulted in the development of more graduate training centers with improved facilities. There is no doubt that the quality of ophthalmologic practice improved mightily as a result of the prestige offered by possession of the certificate of the American Board of Ophthalmology.

The original intent of the Board was to improve the standards of ophthalmologic practice throughout the United States, and much was made of the fact that the examination was designed to determine whether the candidate was a "safe ophthalmologist" or not. The board and others hoped that, by qualifying specialists throughout the United States, a practitioner could safely refer a patient to any ophthalmologist in the United States who possessed the Board certificate. Unfortunately the term "safe ophthalmologist" never was defined, and the ideal examination was never developed. This surprised few who were trying to maintain high standards. Nevertheless the original intent was accomplished. Time and progress, however, forced changes in objectives, and it soon became clear that the original concepts and type of examination should change because of additions to our knowledge of the eye and its relationship to the body. Social and economic changes and rapid growth of the population also prevented the establishment of rigid criteria as to what a candidate should know and how he should practice. The number of ophthalmologists trained never equaled the demand, and the optometrist had to fill the gap as far as refraction and fitting of spectacles were concerned.

Research in ophthalmology largely was of a clinical type for many years, and the early American literature is replete with case reports and statistical summaries of the findings in "X" cases of some disease. A few pioneers (well known to all) carried out fundamental work in pathology, microbiology, and physiology, and their work was a credit to themselves and to ophthalmology, and was warmly received in the basic fields of medicine. Their success was due largely to their strong motivation. Soon others were attracted by these accom-

plishments, received training, and passed on to other institutions. During all this time, a considerable number of advances were accomplished by physiologists who were interested in visual physiology, color vision, and oculomotor function.

As the hopper gradually accumulated a bottom layer of information on the basic form and function of the eye, more and more students were attracted to research on the anatomy and physiology of the eye, its diseases, and its correlation to other body functions.

Finally the Institute concept led to establishment of coordinated centers for clinical care and research on the eye. The race was on! In ophthalmology, as well as in all other fields, research became of crucial importance to every medical school department. Some schools or departments were not so fortunate as to have contacts with one or more wealthy donors; their problem was to develop the best possible clinical department, and to be content with a minimum of research activity. Other departments and schools simply had to stay out of the race.

Preceding and immediately following World War II, a fairly good balance between clinical practice and research was achieved. Most ophthalmologic research was done in a few schools. The trainees of these departments at times went on to establish strong departments in other medical schools. The output of research was small in amount, of varying quality, and the "research worker" and his work were open to suspicion by the practicing physician.

The effect of this research on the ophthalmologic resident, however, was tremendous. I well remember a question in an American Board of Ophthalmology examination in the '40's which asked the candidate to discuss the significance of hyaluronic acid. Consternation! The American Board of Ophthalmology had gone too far! This was the last straw, and such questions had nothing to do with the safe practice of ophthalmology. An interesting sequel to this tale is that the words "hyaluronic acid" now probably are in more common usage in ophthalmology than the word "uveitis." Such is the pain induced by the introduction of fundamental information into qualifying examinations.

It is obvious that the examinations had to change from time to time as a result of the accumulation of fundamental information and the resulting disproof of so-called "facts" which had been handed down from generation to generation. American ophthalmology was growing up. The clinical departments of ophthalmology in medical schools also had to change. They were constantly forced to integrate the teaching of fundamental information into clinical medicine. The resident was required to gain factual knowledge, and also had to become conversant with many aspects of physiology, biochemistry, anatomy, histology, pathology, and microbiology as they apply to the eye. This type of teaching often necessitated cooperative teaching by members of basic science departments. Members of the ophthalmology department also had to develop partial skills in some of these fields in order to teach. In a few schools it was necessary to establish some type of basic science department within the department of ophthalmology because the members of basic science departments in the medical school were too busy to teach in outside departments. Many eye departments were unable to attract or develop teachers with special skills. They soon required that their residents be trained in a basic science eye course. A number of these courses

gradually developed in schools throughout the country. The courses in these schools ordinarily lasted four to nine months. Still other residency programs continued to give only clinical training for twelve to thirty-six months. The trainee in these institutions had to gather his basic science information in some other way.

Shortly after World War II the Government, the schools and the medical profession were confronted with a very rapidly expanding and migrating population. This, coupled with the cold war, caused many to urge enlargement of medical schools, hospital facilities, and improvement in the teaching of medicine. Particular emphasis was placed on the teaching and development of basic scientists, research workers, and teachers. These were needed because of the larger school enrollment and because of the establishment of new schools. Large amounts of money became available from private and public sources (mainly the Federal Government) for the development of schools, research facilities, and hospitals. This had an enormous effect on medical schools and their component parts. Ophthalmology departments were required to teach more students and to spend more time per student; summer student fellowships soon became available and popular, thus further engrossing the time of the teaching staff.

The effect of all these changes was to provoke considerable thought as to teaching methods, and the development of some ideas as to the "hard core" of information which should be possessed by the graduating senior. Some departments have met this challenge beautifully, while others have slept through it all.

Since 1950 heavy pressure has been exerted on the departments of ophthalmology to take more and more trainees. Applications for the "good" residencies reached fantastic proportions, and during the early 1950's the poorer residencies often went unfilled. Trainees were urged to learn more clinical medicine, study laboratory medicine, and teaching methods. A decided deficit of teachers existed. New medical schools required trained staffs, well versed in clinical and laboratory medicine. Rarely were people of this caliber available.

The departments responsible for the training of these teachers became responsible for studying teaching methods. How are new teachers to be taught? Is one a teacher just because he has had a clinical training, and a medical school or hospital appointment? Does teaching consist merely of repetition of factual knowledge, or does it involve something more profound? Teaching requires preparation and thought. The responsible chairman of a department has to be concerned about the preparation of certain trainees for teaching positions. They must have experience, but they need supervision and direction on how to prepare for this.

At the same time, in addition to teaching, the faculty is faced with the possibility of having to establish research laboratories. The dean says there is no available laboratory space, and his budget will not support additional laboratory or research personnel. In some schools there is a "going" organization, and the problems are few, but most departments are caught with the wrong exposure. In order to obtain funds from most granting agencies, the chairman must have a few square feet of laboratory space, and some funds from his school.

This dilemma was solved for the poor chairman a few years ago when state legislatures, foundations, and the Federal Government loosened the purse strings to provide many millions for re-

search facilities, hospitals and personnel. At the same time, research grant funds became much more available. Tuberculosis, heart, cancer, and poliomyelitis foundations collected millions of dollars. Soon almost every disease had its foundation, further easing the research fund situation. The Federal Government, through Congress, became even more generous. As a result of increased availability of funds many departments soon developed excellent research facilities, academic and basic science personnel, technical help, and ample funds to carry out fundamental research in many ophthalmologic fields. All this is fine for the department and school, but further buries the chairman in a welter of duties; medical student teaching; resident teaching; basic science courses; administrative duties; committee work; applications and progress reports on research grants; and efforts to keep peace in the family.

If he has sufficient vitality remaining, the chairman must face this long-deferred problem of how to teach his residents. If he is in the same rested, untroubled mood as I, he can reflect somewhat along the following lines: The word "research" means many things to many people. To some it recalls a laboratory pungent with the odor of chemicals, with scales, test tubes and other glassware, bunsen burners, and bubbling flasks. To others, the slightly less pleasant smell of the animal operating table, animal quarters, cages, and a vision of surgical instruments, and sterilizers. This is the so-called "laboratory" side of research. Under other conditions the term calls forth the vision of a hospital ward with special adjunct laboratories for metabolic or other studies. The final concept would be that of the hard-working clinician, collecting clinical data, and summarizing the findings. These are examples of "clinical research."

Does any of this involve the resident? Need he be bothered by things which are extraneous to the need for becoming a clinician? If everyone, everywhere, insists that research is not pertinent to training, how would we evolve knowledge, and where would our future teachers gain their research experience? It seems quite obvious to me that a man cannot learn to become an outstanding research worker and, at the same time, become a superior clinician. For this reason, should the trainee have become skilled in a basic field prior to becoming a resident? I believe so. On the other hand, should he wait until he has finished his residency and then go into fundamental work for a definite period? Most feel he is too far along by this time to prepare himself for research, and that he is more likely to be interested in a practice and earning a living.

Should all residents be given research experience? It is obvious that all men are *not* created equal, and some say it is not wise to force everyone to do research. I and many others believe that a resident is much better trained if he has been forced to carry through a research project. It teaches him to read and interpret the literature intelligently; it makes him sympathetic to the problems of research, and it shows him the need for advancing our knowledge.

If we decide that all residents should have research experience, what is the curriculum? Is the resident just assigned a problem under the tutelage of one of the staff, and guided through the maze to its completion? Does this finish his experience? Or is he appraised and assigned a project based on his potentiality, to be carried out through the training period? A more desirable method is to give all residents a series of experiences in biochemistry, physiology, microbiology and pathology. Following

this, a problem can be selected according to the talents of the individual.

The previous discussion does little to answer our questions, but it does give the historical background and some of the concepts involved in training. One additional problem has to be mentioned. If the major eye departments in the United States which have good research and other facilities require most of their residents to obtain only a clinical training, are they failing in their duty to train teachers and investigators? I think they are. If they require research and research training of all residents, what happens to the better men who want only a clinical type of training? Will they be content to take a less superb residency which does not require research experience? I think most of them will try for the superior residency even if they care little for research. An interesting by-product of this system is that an occasional trainee "catches fire" and becomes an outstanding teacher and research worker.

We are now faced with another item in trying to solve our problem. This involves the candidate himself. The diversity in skills of candidates applying for ophthalmology and other residencies varies tremendously. The "average" applicant with a good scholastic record, recommendations, absence of special achievement in college or medical school, and frank disavowal of an intent to do research poses no problem. The "superior" applicant has these same qualities and in addition shows special research achievement both in college and medical school, and a somewhat better scholastic average. The "very superior" applicant has everything, and obviously is an "A" candidate for clinical and research training. There remains the "odd ball" who has fascinating possibilities, probably will create many problems in the clinic and hospital for the chairman, and may or may not become a good clinician. The temptation to select such a person is great, if the chairman has fortitude—and a few extra minutes a day.

The final item has to do with "balance" in a department. A medical school is a place to teach medical students. In order to teach students the school must have outpatients and inpatients. Some must take care of these patients. It is the obligation of the department to give its patients the very best possible care, and this cannot be done if the clinic and hospital are neglected. Therefore, the faculty must assure that the patients are properly treated. Beyond this, there must be assurance that the trainees are properly motivated, will do their share of work, and have the spirit of give and take which goes with endeavors of this type. If all works out well, there should be sufficient time for didactic and clinical instruction, as well as for research.

How can the chairman and his faculty resolve these problems and fulfill their obligation to the state, community, medical school, and department? Ours is a state university, supported largely by state funds. It is, however, quite well endowed privately and has sizeable amounts of research grant funds. One obligation is to provide practitioners for the various communities in the state, and be certain that they are of a superior type. This is kept in mind constantly. Our faculty in ophthalmology is strongly opposed to a training program which turns out graduates who are only academically and research oriented. It feels that there is a danger in many departments that the full-time faculty is more preoccupied with training than with the patient. One member stated, "When you come down to it, the only importance of all the research that is being done is that it should benefit mankind. Knowledge is a neutral thing. It is neither good nor is it evil. It takes a certain amount of *balance* to use knowl-

edge in such a way that good is accomplished."

This word *balance* seems very important to me. We have an obligation to the students and our school; we also have an obligation to advance knowledge and put it to good use. For this reason every ophthalmology department is a rule unto itself, for the needs of the community, school and department vary. The resources of many schools may preclude establishment of anything but a clinical program. I would sooner see the development of a *strong* clinical department in a school than of one which is weakened by poor research. The greatest need is for a superior clinical training, and I would like to see *all* clinical departmental teaching strengthened by instruction in ophthalmic pathology, microbiology, physiology, optics, and biochemistry.

I feel that *less than half* the residents in any training program should be those who are oriented toward academic and research fields; also, that those who are selected for such special training should be well motivated and have a record and background which would place them in this category. If such trainees are not available, strong clinically oriented residents should be selected. All clinically oriented trainees should receive basic instruction in microbiology (cultures and scrapings; animal inoculations; tissue culture; serology; immunologic procedures); biochemistry (general chemical methods and methodology; electrophoresis); pathology (histochemistry; phase and fluorescent microscopy; electron microscopy; general techniques); optics (physical and geometric optics); physiology (visual physiology; light and dark adaptation; color vision; perimetry); anatomy and histology (dissection; demonstrations; light and electron microscopy of normal tissues).

Academically oriented residents should receive the same type of instruction. In addition, during the first year, they should spend four months half-time in biochemistry to work out problems which involve use of modern equipment; four months in microbiology to learn more advanced methods and actually carry out problems involving tissue culture, serology, etc.; and four months in pathology, where additional special instruction is given. A research project should then be selected which the resident should perform under supervision and which will continue throughout the residency training. Such trainees should spend four or five years in the program rather than the three years for the clinically-oriented residents. It is hoped that the one to two additional years will prepare the trainee for teaching and an academic career. It is probable that it will succeed because of the trainee selection and program.

CONCLUSIONS

1. Hard and fast rules cannot be made as to the *amount* of time which should be devoted to training in research during the graduate period. The amount actually provided depends on (a) the trainee (background, aptitude, motivation), and (b) the institution (faculty, facilities, funds). Institutions with adequate faculty and facilities should schedule a period of basic science didactic and laboratory training for *all* residents. Those without such facilities should require basic science instruction at an institution having postgraduate courses.

2. No more than 50 per cent of residents in a training program should be accepted for special training for an academic career. A higher percentage upsets the balance between clinically oriented and academic

groups, and results in poorer patient care, and poorer administration of the hospital and clinics.

3. The resident who is selected for special training should spend at least four to five years in such training. The chairman should be diligent to provide a superior training in clinical ophthalmology, as well as a review in the basic fields. Special education should be provided in the field of choice, and research should be encouraged in this area. The trainee should study teaching, and teaching methods, and provision should be made for him to use these methods. Special courses in such fields as statistics and mathematics should be taken in those institutions where they are available.

4. The chairman of a department of ophthalmology has the obligation to ensure that his department provides proper instruction to medical students, and proper care to patients. He should assure that all residents receive the best instruction he and his faculty can provide. Also he must consider the needs of his state and community, and make his department conform to their needs. He should give proper instruction to selected individuals for a career in academic ophthalmology, including research, but not let such programs interfere with the proper balance of his department.

ALSON E. BRALEY, M.D.
IOWA CITY, IOWA

Perhaps it would be best to define the training of an ophthalmologist, but this is impossible in the few minutes assigned to me. Briefly, we want to train medically oriented men in the latest methods of clinical treatment but with the incentive to be alert to new developments. How many of the new developments should be contributed by ophthalmologists?

Nearly every one of you has been approached by someone with a money-saving scheme. Since ours is a private enterprise system, our industries must advance for themselves. Some of these companies which show the best so-called "growth" depend upon research and development for their continued growth. Research and development must be done by men or women working alone or in teams. The history of our industry has been that the companies with the best team for research have made the best growth. These companies also illustrate that the initiation of research and development in the company must lie with the president of the company and filter down. The president does very little of the research but he knows how valuable it is to his future. Every person in the company should be best qualified for the part of the work he is doing. The research man may not be able to administer the business of the company but he should appreciate that this facet of the work is also important.

I have heard that our present training programs are out of balance. They emphasize research and forget the *real* reason for ophthalmology. The real reason is to take care of sick people. If the treatment of sick people is neglected for the research, the programs are out of balance.

There are more than 140 ophthalmology training programs in the United States today. Nearly every one is located in a city where there are many people to care for sick eyes. The residents in

Professor of Ophthalmology, State University of Iowa School of Medicine, Iowa City.

these programs came to the hospital expecting to spend many hours treating patients. Can we have several — shall I guess 30—programs for the training of ophthalmologists in the country whose primary purpose is to train ophthalmologists in research and development? Can we expect much research and development from the man who is spending all his time treating patients with eye diseases, one after another, until he drops from exhaustion? Do you think for one minute that sometimes one of these devoted people does not make a mistake in treating a patient? These dedicated people many times have very little guidance. How many residents should take care of how many patients? Sometimes this is based on the number of surgical cases that can be gleaned from this group. So that a resident can get more experience in surgery, he may try to see many patients or he may engage the help of friends in getting surgical cases. These men have no time for research. Perhaps their program may be considered out of balance in the other direction. I remember visiting with one of these residents in a busy clinic. He said, "I can't always take the time to find out what is wrong with the patient. Sometimes we just give them a medicine we have on hand." This is probably unusual, but I can't help but think that just finding out what is wrong with an eye may involve a kind of clinical research.

The research training of the ophthalmology resident can be divided into several phases.

The first is laboratory research. Here the trainee learns to use the tools of the laboratory, the test tube, the culture plate and smears and the pathology slide. All these things are familiar to him from his study of other parts of the body, but their connection with the eye may not be so familiar. The laboratory tests are used to supplement the clinical diagnosis. The trainee learns to do and to ask for various tests on a patient when the diagnosis is obscure. The laboratory may also indicate or lead the trainee into a field of investigation.

The second phase is to become acquainted with the more complicated laboratory apparatus and methods of biophysics and biochemistry. All of the tools of the laboratory may be applied to finding out something about the patient. The resident can learn to perform many of these studies himself.

The third phase of his research training is the collection of valid clinical data and includes learning how to set up a study without introducing bias. He must learn that no matter how honest he wants to be, he must always be on guard against the tendency to introduce personal bias into a study.

The last phase of research training should enable him to set up and direct a team of people, a combined clinical and laboratory research problem. It may be only a collection of cases, but it is important for him to use all the information available to make his point. Then comes the work of writing up the material, being careful not to slight any previous workers in the field.

Does this kind of a program interfere with a residency program?

My answer is *no!* It makes it much better. Men so trained will be able to approach logically any problem that involves clinical or laboratory ophthalmology as it exists today. Perhaps they may need more practice in the routine clinical function. Perhaps it may take them a little longer to do a refraction, but I can't help but believe that they are thinking about what is happening every minute. They will not be as disturbed when the patient hesitates in his an-

swers. They will want to know why the patient is hesitant.

The future of ophthalmology is on a threshold. We must train research ophthalmologists if we are to continue to hold our rightful place in medical society. Are we going to make a contribution to medicine? I say *yes!* If we continue to develop the keen minds of men who want to know "Why?" we can't help but emerge as leaders in medicine. If we want to train technicians, then we should make them do over and over those things that will make them great cataract surgeons. Let us make great research ophthalmologists to replace the Verhoeffs, the Weeks and the Friedenwalds.

A. EDWARD MAUMENEE, M.D.
BALTIMORE, MARYLAND

A few moments ago Dr. Benedict intimated that this was something like an examination of the patient. He has passed from Dr. Hogan to Dr. Braley, and I am the last to speak, like a consultant who sees a very difficult case that has been seen by many experts, and there is really very little left for me to do or say about the problem.

The question posed by this meeting is difficult if not impossible to answer, but there is no standard amount of research training that is correct for all institutions. The time the resident should spend in research training will depend on the staff and the type of house officers in the program, and on the physical structure and environment in which the teaching center is located. Therefore, instead of trying to give a direct answer to the question, I will try to answer it in a somewhat roundabout way.

Wilmer Ophthalmological Institute of the Johns Hopkins Hospital and University, Baltimore 5, Maryland.

Why is there such a marked increase in research in medicine and ophthalmology today? I think there are several reasons for it. One is because in medicine now we have advanced to the point that it is no longer an easy matter for someone to describe a new syndrome or a new disease. Most of them have been put in very nice categories. Extra patient surgery has just about reached its limit. There is hardly an organ in the body that can be removed in a way that is new and different. So, transplantation surgery is the surgery of the future.

Medicine has become more complicated. We have more specialists. If the specialists know their field very well, their next step forward is to investigate whether to become research workers as well as clinicians in their field.

I think this attitude is shown somewhat in our teaching program at Hopkins. In the last few years we have revised our program so that we now have a free quarter in our medical students' last four years in which they may work either in the laboratory or a special clinic studying a special field. Surprisingly enough, approximately 80 per cent of the students have chosen to go to the laboratory to spend ten weeks of their free quarter. In addition to this we have an eight-week period in the summer that many of these students choose for research work. Therefore, we are going to have more people coming along who are interested in research work and investigative work, who are going to apply for our residents' assistance.

The next reason for this increase is that the world in general has become more interested in science with the advent of electronics and atomic energy, and more people are interested in the scientific subjects earlier in school. Along with this, the prestige of the scientist has increased so that there is a prestige factor now in being a research worker as well as a physician.

Last and certainly far from least, is the fact that government support in the form of money to carry out this research has become available in an amount which medicine has never had the privilege of using in the past.

What is meant by the word *research?* Many persons have different definitions. In medicine I think it is applicable to any systematic search for any factor that will influence the life of man. We might break this down into two general types. First is basic research, and second is applied research. The basic researcher is one who is interested in a chemical compound or physiological function, and he has no desire to determine whether his work will have any influence whatsover on biological functions. An example is the person who discovered the arsenic compounds, who was interested in basic research; whereas Ehrlich in his 606 experiments to find an arsenical compound that would treat and cure syphilis was interested in applied research.

Similarly, the person who discovered azo dyes was not interested in whether they had any influence on medicine or not; but Domagk began examining these dyes to see if they would have any influence on the growth of bacteria; and he discovered penicillin, the forerunner of the sulfonamides.

How do we report research? There are certainly many different methods. The mathematician reports by long, complicated formulas. The chemist studies reactions in his chemical laboratory; and today many people rely for data analysis upon machines so complicated that it requires years to learn how to run them, and many technicians to keep them operating.

But let's not forget that the physician is also an investigator if he cares for his patients properly and records each of his findings on his patients so that he can then go back and evaluate what he has discovered from his clinical observations.

Dr. Alfred Blalock, in his Presidential Address to the American College of Surgeons in 1955, chose the topic, "The Nature of Discovery."

He divided his subject into four general categories. First, he stated, discovery occurs by chance or by accident. Next, by design and attention. Third, by intuition, major hunch. Fourth, a combination of these factors.

He cites as "discovery by chance" the observation by Jenner that those persons who developed cowpox after exposure to a sick dairymaid did not develop smallpox. He went ahead and developed the smallpox vaccine.

Walter Dandy one day was examining a patient with acute abdominal pain and noted a pocket of air under the diaphragm. This observation led to his use of air in encephalography.

Most of the great experimental discoveries have probably been done by design or by intent, and certainly in ophthalmology we have the example of Jonas Friedenwald and his study of the problem of glaucoma. If you read his papers, you will note that he first observed an increase in the amount of aqueous while examining a patient in whom the lens had dislocated into the anterior chamber. He went from this to an anatomical study of the trabecular meshwork and of the outflow vessels, and from here he went to the ciliary body and to his histochemical studies, electropotentials in the ciliary body, that led him to the idea that the aqueous was in part a secretion.

The question of intuition, major hunch, is rather hard to illustrate, but Otto Loewi wrote of the hunch he had.

On Easter Sunday in 1921, when he was awakened from sleep by an idea for determining the transmission of nerve impulses to the affected organ, he reached out to his bedside table and jotted down a few notes. When he awakened the next morning he remembered that something important had occurred, and he picked up his notes but couldn't read them. A few nights later the dream recurred. He immediately got up, dressed, went to the laboratory, and carried out experiments on frog hearts with saline solution, exploring the reactions of the vagus and sympathetic nerves.

Probably most research and investigative work occurs from a combination of things. Certainly the person who is well prepared is the person who is going to make the most obvious discoveries. Louis Pasteur said, "In the field of observation, chance favors only the prepared mind." This is certainly a very true statement.

Helmholtz mentioned that hunches seldom came to him when his mind was fatigued or when he was at his work desk. So, I think in research we have to allow time for our house officers to think and contemplate; and we have to have them prepare, as Dr. Hogan and Dr. Braley have mentioned, so that they are capable of making observations and evaluating their observations.

This brings me to the point of how much training should be a part of graduate training in ophthalmology. I think, as our previous panel members have mentioned, that training in research should be an every-day teaching fact. On our ward rounds we should teach residents how to observe and how to make accurate recordings of their observations. They also should be taught research work. If physical facilities and an adequate teaching staff are available, I think every resident should be assigned a laboratory research problem that is in line with his own interests; that is, he should not be arbitrarily given a program or a research project, but after he has been in ophthalmology long enough, unless he develops a project for himself, you should design a project for him that is simple enough so that at least a partial answer can be obtained from its study.

If this is done, you will find that there will be an occasional person who has manifested no interest in research and who has stated that he did not like research, who will become very interested in investigative work and may become an excellent laboratory research man.

What is the place of a research worker in ophthalmology? I think this probably could be the subject of another panel discussion. As I mentioned, I think it is important for all ophthalmologists to have a sufficient understanding of investigative technique so that they can make accurate observations and so they are acquainted with how to read, how to compile information from the literature, and how to design problems properly.

Once we have trained these men, I think, by and large, we will find we have ophthalmologists who are well qualified to do basic research.

It is very important, however, that we train enough ophthalmologists so that they are able to interest individuals who have capabilities of doing truly basic work in the ocular tissues and in the reactions of the eye, so that we can take

advantage of their observations and apply them to disease problems.

It is also important that we be able to interest these research people in our problems to such an extent that they are willing to teach our residents some of their methodology.

CHAIRMAN RUEDEMANN: You have listened to four excellent men discussing ophthalmology and research in our phase of medicine. It is now up to you people to ask questions. Dr. Benedict will conclude.

Are there any questions from the audience?

BERNARD SCHWARTZ, M.D., Brooklyn: I would like to comment on the point that Dr. Braley brought up.

I believe that the majority of training programs and residencies are found in large city clinics with a tremendous number of patients. The principle there, as Dr. Braley pointed out, is in seeing a large number of patients in order to obtain sufficient training. This principle has been discarded in our medical school teaching. We don't take our second-year or third-year students and throw them into a large clinic and have them see as many patients as possible. We have each student work up each patient carefully, under supervision, and we give him adequate time.

What I am trying to point out is that we are confusing mass clinical care with training. What I would like to recommend is that more attention be given in training institutions to each resident, allowing him to see a limited number of people whom he can study thoroughly and thus understand the basic problems in connection with them.

Perhaps with the changing economic situation and more patients under insurance programs we will have less clinic patients and therefore more time for each resident to study each patient. We should not confuse the two issues of trying to mass clinic care of all eye problems in busy clinics and at the same time teach the residents on that basis.

CHAIRMAN RUEDEMANN: Are there any other questions? Dr. Benedict, would you like to conclude?

DR. BENEDICT: I know that all of us, in listening to these talks, have had some questions that we think probably aren't worth bringing up. I have, however, what to me is a practical question that I want to put first to Dr. Braley.

I will assume that in Dr. Braley's institution he has at one time from fifteen to twenty residents, and that they come from a number of medical schools, with a background about as varied as we could find. Their objectives are somewhat divergent, and their capabilities are still more so. He has seventeen men and he has one Board examination that is going to be a barrier and a screen.

Actually, Dr. Braley, what do you do with these men in Iowa City? Do you separate one group from another? Are there so many channels that you give individual instruction to each man? Or mass instruction?

DR. BRALEY: That is a real question, Dr. Benedict. I see in this audience a number of men who have been and who are now on our program.

Most of the men who apply at Iowa City, I would say, have a research orientation, and I think probably this is good. I personally feel that it is good to have various programs oriented in certain directions. I think perhaps this is one of

the mistakes that the Residency Review Committee has made.

I served for a number of years on the Residency Review Committee. They try to make all residents do everything. Let's say that at our institution men come to get their training because they know they will have a kind of investigative training without having a lot of patients to see. Still, their patients are all screened for them before they ever get there.

How much clinical experience does each one of them get? I feel that their clinical experience is very adequate. Each patient represents a laboratory experiment for each resident, and he follows that experiment through. Granted, the individual patient is not planned for him, because we take those patients who are referred; each one gives him a very broad experience, and he has an opportunity to see how every other man works up each patient.

In addition to this, each man works in one of the laboratories with one of the men on the staff. I feel that each one of our residents gets a great deal of personal time from our staff members and from the senior people.

One of the things that Dr. Benedict is worried about is whether our boys are getting enough training in surgery. I don't think I have heard a single man ever complain, even now with seventeen residents, about the small amount of surgery he gets. They may complain today because they didn't have any to do, but by the time they leave most of them will have a good deal of surgery.

DR. BENEDICT: This was my question: Knowing the divergent aims of some of these men who are going into research and those you know will never do any research, such as we find in laboratories that have been spoken of, do you make those men all follow the same pattern or path?

DR. BRALEY: No. I think that is the best answer I can give you. I can amplify it, but I would rather just say "No." Each man comes to me from divergent paths, and you never know which way they are going to go. Most of them eventually become interested in doing a piece of research or an investigation, even though they may have told you before they came that they didn't care anything about it.

DR. BENEDICT: Of course they can be primarily interested in teaching and training for teaching from a technical standpoint. We have heard much talk about research in laboratories that require equipment and rigid mathematical background. There is another type of research not involved with laboratories but involved primarily with the library or in places where statistics are available.

I would like for Dr. Hogan to tell us exactly what happens when he wants to do some research. He has animals in the laboratory, and probably things that have to be investigated from the literary standpoint. How does he integrate these into the program for his students? Are they really a part of the teaching program?

DR. HOGAN: I think Dr. Maumenee's comment would really answer the question, "Research is an every-day process." Every patient one sees is a problem, and in studying the patient, the resident is taught the basic principles of research by using scientific methods of examination, by observing important

facts, by properly recording the facts so that they can be used later for reports on alterations and clinical findings in disease.

In our department a considerable amount of clinical research is done. We have what I think is an excellent glaucoma department headed by Dr. Shaffer. A reasonable number of patients are seen. They are carefully worked up by the staff. They have adequate studies as far as present methods of investigating glaucoma are concerned. Recordings and photographs are made on these patients; therefore, the residents have a chance to see all of the usual and unusual types of glaucoma and to observe the findings and to learn the methods of studying glaucoma patients. The same procedure is followed in the uveitis clinic.

One does not need a laboratory to carry out research; but sooner or later, if one follows this routine, the need of a laboratory becomes greater and greater, and I believe that the clinical department without adjunct laboratory facilities is apt to be pretty limited in its capabilities.

DR. BENEDICT: We know that Dr. Maumenee has trained a large number of men who have distinguished themselves in practice and also men who have stayed on for teaching and research. There is one factor that has run through my mind for many years about Johns Hopkins; that is, that much of their teaching, as far as we can observe it, is personalized.

I would like to have Dr. Maumenee express his opinion on two phases—first, as to what encouragement he would give to a man to strike out on a particular line of work—as Will Mayo used to say, "Know more and more about less and less"—and second, to bring into his remarks some comment about the financing of an institution that provides such training—whether the support is adequate from contributions from various sources or whether there is a greater demand on public health sources.

DR. MAUMENEE: Dr. Benedict, I hope I can answer your question at least in part. To do this I probably should go back a little bit to the question you asked Dr. Braley about training the house officer.

I feel that when a house officer comes into ophthalmology for training, it is our duty to give this person the best clinical training we can possibly give him. I think we should utilize the scientific knowledge of Ph.D.'s on our faculty in special fields. If we find a medical student who is particularly interested in investigative work, who thinks he wants to spend his life in investigative work in ophthalmology, we might take this medical student straight from medical school; not insist on an internship but allow him to go directly into the laboratory to begin his work.

If the individual decides he wants to go into clinical work, then, as I have mentioned, it is our duty to give him as much scientific training in the care of patients as we possibly can.

I think that the person who leans toward clinical medicine should be exposed to laboratory investigative work. I believe the person who comes into clinical ophthalmology and who leans toward laboratory investigative work should be required to become an excellent clinician, otherwise he might just as well have gone into the laboratory without coming into his ophthalmic training.

So, our attitude is that we try to hit that balance that has been mentioned several times. We try to interest each student in some laboratory investigative problem during his training period, and occasionally an individual who thought he had no interest in the laboratory turns out to be an excellent investigator.

We take the research-minded individual, the laboratory-minded individual, and give him training in clinical work and make the laboratories available to him, and particularly we give him extra years of training if he so desires. I think these years of extra training above and beyond the requirements of the American Board are the things that will encourage people to stay in active work. This, of course, requires financing, and this is a problem on which I am certainly ill-equipped to advise anyone—that is, how one can try to explain to someone that a life of academic work is the thing he should have, instead of a lucrative clinical practice, unless that person actually has the desire and finds the interest and stimulation in his academic work sufficient to make him willing to forego the extra monetary gain he would have in his clinical practice.

As far as the financing is concerned, I think our financial supports for specific research grants are very excellent at the present time. There are very few good research projects for which investigators cannot find sufficient funds.

However, with this tremendous increase in money for specific research projects, we have now run into two stumbling blocks. The first of these is tenure for the full-time investigator, the individual who has decided he wants to make laboratory investigation his life's work. In some way, we have to guarantee that person a continuing job—not a year-to-year job—when he has foregone his chance to go into private practice where he really has tenure when he gets a good following of private patients.

Next, this tremendous increase in the number of research projects has made our buildings shrink to the point where we just can't handle all of the people who would like to go into laboratory investigative work.

DR. BENEDICT: Thank you, Dr. Maumenee. Dr. Seger, would you like to come up and speak over this microphone?

DR. GORDON SEGER: This discussion has been extremely interesting to me, because, you know, I have been for the last five or six years connected with this problem of training clinicians to be investigators, and I know there are many, many problems connected with it.

As a representative of the National Institute of Neurological Diseases and Blindness, please be assured that we don't have the answers to these problems. We have many, many questions. I would say, however, that there is no doubt in the National Institutes of Health that in training a clinical investigator the primary responsibility is to train a good clinician. This must be done, otherwise, you cannot have a good clinical investigator.

I would hope that insofar as possible an effort would be made, when training clinical ophthalmologists, to give them a research orientation. To me, research is a way of life—a method of thinking. It is not necessarily connected with the test tube. It is the inquiring mind—the attitude. If this can be instilled in the resident, I think we will have gained, in the end, a better ophthalmologist.

People say that some of them are going to be trained in research and others

aren't. You really have no idea where these boys are going after they leave your department. Five years after they leave they may be in voluntary or part-time teaching in another university. They will be better teachers if they have had a research orientation. We think they will be better ophthalmologists.

Also, we are doing the best we can to build stability into this picture so as to encourage the research-oriented teacher or academician to spend more of his time in academic life. We are doing this in several ways, and I think it is quite important that I speak of recent developments at the National Institutes of Health.

There is no doubt that in the years to come there is going to be a great increase in grants made for the support of clinical research centers. What this is going to amount to really is grants to support research programs, not just research projects—to support research programs that are not specifically stated, but stated only in general terms. These grants also will support a clinical facility which many institutions do not have at the present time.

Another very recent development is what we call the teacher's investigation or grant given by the Institute of Neurological Diseases and Blindness. This grant supports a man in an institution, pays his salary and provides him with a research fund so that he may spend his time in academic medicine.

There is still a third program which has not been announced yet but which you will hear about within the next week or so. This is called "career research professorships." The National Congress is well aware that many of our best research brains, many people with the best research abilities, cannot spend their time in research; they really have to spend their time making a living. So, the Congress has appropriated funds that may be used to give grants to institutions to support individuals for long periods of time in an academic atmosphere. Don't misunderstand me — they will be not just in a laboratory but they will be full-fledged academicians.

I want to thank the Academy for this opportunity to talk about these programs, because ophthalmology has made great strides in the last few years and I don't want it to decline at all. I want the rate of progress to keep right on going.

TRANSACTIONS

American Academy of Ophthalmology and Otolaryngology

Official Publication of the American Academy of Ophthalmology and Otolaryngology
Published under the direction of the Editorial Board
WILLIAM L. BENEDICT, Rochester, Minnesota, *Editor*
W. HOWARD MORRISON, Omaha, Nebraska, *Associate Editor*
HENRY L. WILLIAMS, Rochester, Minnesota, *Associate Editor*
Printed by Douglas Printing Company, 109 North 18th Street, Omaha 2, Nebraska

William L. Benedict, M.D., LL.D., Executive Secretary-Treasurer
American Academy of Ophthalmology and Otolaryngology
15 Second Street S.W., Rochester, Minnesota

WHY LAS VEGAS?

Your Academy is probably now the largest medical specialty organization in existence; its membership nearly 7000. Including guests and exhibitors, a total of 6,966 registered at the 1961 annual meeting.

In recent years, Dr. Benedict has received an increasing volume of protests over the crowded conditions at the Palmer House, with suggestions that the meeting be held elsewhere. Some suggest that there are many more interesting places than Chicago and that its only attraction is its central location.

A meeting of the Academy has never been held in the West Coast area. The fact is until recently adequate hotel facilities have not been available.

The new Convention Center at Las Vegas was brought to the attention of the Program Committee about a year ago, and a meeting of the Board of Secretaries was held there last June. This group was so impressed with the facilities at the Convention Center that it voted unanimously to recommend to the Council that the 1962 meeting be held at Las Vegas in November. This would be an opportunity to hold the meeting in a West Coast area and in convention facilities that at this time are apparently unsurpassed by anything in the United States. A motion to hold the 1962 meeting in Las Vegas, Nov. 4 to 9, was passed at a meeting of your Council on October 7, 1961.

At the Annual Business Meeting of the Academy on October 12, 1961, some disapproval of the Council's action in selecting Las Vegas was voiced but when the vote of those present was taken, a majority registered approval.

The principal reason for objecting to this site was expressed as poor judgment in public relations in that the "image" created for medicine would be a poor one, because Las Vegas has been known principally for its gambling facilities. One gentleman even remarked that he was acquainted with the "flesh pots" of Las Vegas and certainly did not think it was a suitable atmosphere in which a medical organization should meet.

In 1959 the Pacific Coast Oto-Ophthalmological Society held its annual meeting in Las Vegas. When I was in-

vited to be a guest speaker I hesitated, principally because I thought that the interests in other things might prevent a good audience. Dr. Howard House reassured me. I went to Las Vegas and was pleasantly surprised to find that the level of interest in the scientific sessions and the conduct of the meeting were no different than they would have been in Florida, on either Coast, or at the Palmer House. I have no interest in gambling so those facilities did not attract me. Shows that are part of a dinner or midnight supper at the leading hotels headline familiar names of those appearing at such places as the Empire Room at the Palmer House or the night clubs over the nation. I saw no "flesh pots" of any kind but I must admit that I did not look for any. If I had such an interest, I suspect that I could have found them easily last October on Wabash or Clark Street in Chicago.

Las Vegas has become a favorite convention choice for business and scientific organizations. A number of national medical societies have scheduled meetings there, including the American Academy of General Practice which will hold its Annual Scientific Assembly there in April of 1962 because of the superb facilities and accommodations in a favorable climate. This fact has played an important part in the decision of the council to name Las Vegas as the site of the next Annual Meeting of the Academy, November 4 to 9, 1962.

LAWRENCE R. BOIES, M.D.

LETTER TO THE EDITOR

October 5, 1961

Dear Doctor Benedict:

Ophthalmology has always favored publicizing educational programs, even though it is paid for through advertising media. Optometry discourages advertising by its constituents and in Ophthalmology we are forbidden by ethics to advertise. Consequently, if there is to be such a publicity program, it must emanate from a source other than professional, and should be on a high level.

Apparently the Optical Manufacturers Association is attempting to provide a medium through which they can keep in contact with the professions that they serve. Insomuch as Interprofessional Committees, at this time, are no longer popular, I am not adverse to a medium through which there can be an interchange of ideas.

Professional men are primarily interested in obtaining perfection, and I am sure if the vote of Ophthalmology was the sole deciding factor in arriving at a program, it would be to devote all available funds in the fabrication of more perfect lenses.

Most ophthalmologists, I find, are not too well indoctrinated in the objectives of the Better Vision Institute; consequently, it is difficult to properly express a representative opinion.

The romance of eye surgery, endless antibiotics, corticosteroids and other new developments have temporarily gained the lion's share of our attention. I am not foreign to interprofessional relations. I was consultant to the National Interprofessional Committee shortly before it was terminated, and I was Chairman of the Indiana Interprofessional Committee during the three

years of its existence. I believe this was by far the best State Interprofessional Committee in existence. During our meetings, the screening of school children, and a National Standard of Ophthalmic lenses were agreed upon as our prime objectives.

In January 1958, I was instrumental in having our State Legislature pass a State law that made the visual screening of school children mandatory; this to be staggered with existing legislation for hearing tests. The other objective, a standardization of ophthalmic lenses, was given the prominence of National recognition and the Z80 Committee of the American Standards Association was formed at our request. An alternate method in arriving at a Standard was discussed, and this was State legislation. I believe it to be more apropos to have all interested groups arrive at a standard for lenses on a National level than to encourage each of fifty states to enact legislation setting forth the requirements of a first quality lens.

Insofar as my survey shows, one third of the ophthalmologists admit they are not well enough informed so as to express an opinion, and another third are not in favor of the advertising program as they see it. Several times during meetings of the Z80 Committee, I have made mention of facts that were worthy of an educational program to the public with the B.V.I. in mind. Now it would seem that the program could at least in part be directed towards professional sources.

I am certain that considerable finance and also well-advised planning has been given to our program by a capable Board of Directors. It might be that our educational program directed at the public could describe myopia, hyperopia, muscle imbalance, anatomy of the eye, embryology, physics of light, quality of lenses and some common ailments such as glaucoma, cataract, etc., so as to meet with the true standards of an educational program and also to satiate those of a professional mien.

Yours truly,

[Signed] CARL J. RUDOLPH, M.D.
South Bend, Indiana

In Memoriam

Charles Decatur Blassingame.....Memphis, Tennessee
June 21, 1961

Morris Botvin.....Pawtucket, Rhode Island
September 12, 1961

Charles William Brown.....San Diego, California
October 18, 1961

Rose Carmel Cacchillo.....New York, New York
July 9, 1961

Duncan Alexander Campbell.....Detroit, Michigan
July 2, 1961

John Francis Henry Deal.....Springfield, Illinois
August 13, 1961

John Fitzgerald Fairbairn.....Buffalo, New York
May 14, 1961

Emanuel Martin Freund.....Slingerlands, New York
July 18, 1961

Robert Chatterton Fringer.....Rockford, Illinois
May 23, 1961

Julius Amos Hohf.....Yankton, South Dakota
August 31, 1961

Maxwell Kaufman.....Brooklyn, New York
July 15, 1961

Clarence Junro Kusunoki.....Honolulu, Hawaii
August 13, 1961

Henry Glover Langworthy.....Dubuque, Iowa
June 27, 1961

Lawrence James Lawson.....Evanston, Illinois
July 11, 1961

In Memoriam

Charles Littwin.....Palisade, New Jersey
May 13, 1961

Harry Neivert.....New York, New York
June 1, 1961

William Francis O'Reilly.....Lynn, Massachusetts
April 22, 1961

Adolph F. Reiter.....McKeesport, Pennsylvania
November 8, 1961

Frederick H. Salls.....Framingham, Massachusetts
May 7, 1961

Ernest M. Seydell.....Wichita, Kansas
September 23, 1961

Benjamin Harrison Shuster.....Philadelphia, Pennsylvania
October 1, 1961

George Barker Smith.....Rome, Georgia
August 7, 1961

Oral Logan Thorburn.....Ames, Iowa
June 17, 1961

Warner H. Tuckerman.....Cleveland Heights, Ohio
May 30, 1961

Edgar Howell Vaughn.....Tyler, Texas
July 27, 1961

Jacob Sterling Wendel.....Detroit, Michigan
September 6, 1961

George Harden Wood, Jr.....Big Spring, Texas
June 17, 1961

COUNCIL MINUTES

SIXTY-SIXTH ANNUAL MEETING

October 7, 1961

Present:

Dohrmann K. Pischel, Lawrence R. Boies, Frederick T. Hill, Maynard Wheeler, Leland Hunnicutt, LeRoy Schall, John H. Dunnington, Dean M. Lierle, Kenneth L. Roper, Clair M. Kos, A. D. Ruedemann, Eugene L. Derlacki, Glen G. Gibson, Victor Goodhill, Edwin B. Dunphy, Harry P. Schenck, Michael Hogan, William L. Benedict.

The meeting was called to order at 9:10 a.m. by Dr. Dohrmann Pischel, President.

I

REPORT OF THE EXECUTIVE SECRETARY-TREASURER

1. Fellowship as of January 1, 1961

Active	5,858
Life	1,010
Honorary	29
Inactive	141
Associate	12
	7,050

2. Fellows elected in 1960 (Included in total membership count as of January 1, 1961)

Associate Fellows: 2

Honorary Fellows: 2

Active Fellows: 232

[*The names of these new Fellows were published in the November-December* 1960 *issue of the* TRANSACTIONS.]

3. Elevations to Life Fellowship on January 1, 1961 (114 Fellows)

Benjamin B. Adelman .....Newark, N. J.
Edward C. Albers .....Champaign, Ill.
Charles S. Alexander .....Houston, Texas
L. James Alger .....Pasadena, Texas
Cary D. Allen .....Portsmouth, N. H.
Donald G. Allen .....Cleveland, Ohio
Albert H. Andrews, Jr. .....Chicago, Ill.
Alfred Appelbaum .....Costa Mesa, Calif.

James O. Beavis .....Dayton, Ohio
Julius W. Bell .....New York, N. Y.
Lawrence R. Boies .....Minneapolis, Minn.
Wesley C. Bowers .....New York, N. Y.
Daniel Brannin .....Dallas, Texas
George R. Brighton .....New York, N. Y.
Otto Broones .....New York, N. Y.
Edward S. Buffum .....Buffalo, N. Y.

Raymond R. Calvert .....Lafayette, Ind.
Sherburne Campbell .....Wallingford, Conn.
William E. Campbell, Jr. .....Atlanta, Ga.
Albert N. Champion ....San Antonio, Texas
Katherine H. Chapman...Colo. Springs, Colo.
Ralph E. Cheney .....Salina, Kan.
Julian F. Chisholm, Jr. .....Dedham, Mass.
Albert A. Cinelli .....New York, N. Y.
Louis B. Cohen .....Philadelphia, Pa.
K. W. Constantine .....Palm Beach, Fla.
Raymond C. Cook .....Little Rock, Ark.
Phillip M. Corboy.....Honolulu, Hawaii
Maurice H. Cottle .....Chicago, Ill.
Charles L. Cox .....New Orleans, La.

Windsor S. Davies .....Detroit, Mich.
Francis W. Davison .....Danville, Pa.
William G. Dickinson .....Syracuse, N. Y.
Edward M. Douglas .....Jamaica, N. Y.
Joseph G. Druss .....New York, N. Y.
Edward D. Dumas .....San Antonio, Texas

Noah D. Fabricant .....Chicago, Ill.
George C. Foster .....Fargo, N. D.
John R. Frazee .....Brookline, Mass.
Gustave B. Fred .....Boston, Mass.

Thomas J. Gerrick ..... Manhasset, N.Y.
Joseph G. Gilbert .....Roslyn Heights, N. Y.
E. King Gill .....Corpus Christi, Texas
Isadore Givner .....New York, N. Y.
Henry Z. Goldstein .....Newark, N. J.
William S. Gonne .....Detroit, Mich.
Robert L. Goodale .....Boston, Mass.
James R. Gorman .....Lynchburg, Va.
Fred W. Graef ..... New York, N.Y.

Walter B. Hardy .....Birmingham, Ala.
Robert T. Hayes ....St. John, N. B., Canada
Gerald O. Hedlund .....Painesville, Ohio
Bruce F. Holding .....Montgomery, Ala.
Edgar M. Holmes .....Boston, Mass.
James M. Houlahan ...Mount Vernon, N. Y.
Morris Hyman .....Cincinnati, Ohio

Percy E. Ireland .....Toronto, Ont., Canada

Louis Kleinfeld .....New York, N. Y.
Herman C. Kluever .....Fort Dodge, Iowa
Hermann M. Koller .....Minneapolis, Minn.

Brendan D. Leahey .....Lowell, Mass.
John R. Lindsay .....Chicago, Ill.
John C. Long .....Denver, Colo.

Phocian W. Malone .....Big Spring, Texas
Marlowe W. Manion .....Indianapolis, Ind.
Don Marshall ..... Kalamazoo, Mich.
Ashby G. Martin .....New York, N. Y.
Angus M. McLeod ....Toronto, Ont., Canada
Donald L. Mishler .....Tulsa, Okla.
Samuel M. Morwitz .....Chicago, Ill.
Edward S. Murphy .....Missoula, Mont.
David Myers .....Philadelphia, Pa.

J. B. Nail, Sr. .....Wichita Falls, Texas
Paul T. Neely .....Portland, Ore.
Orville N. Nelson .....St. Petersburg, Fla.

Walter A. Ohmart .....Denver, Colo.

Bascom W. Palmer ....Salt Lake City, Utah
M. Benjamin Park .....Coral Gables, Fla.
R. Townley Paton .....New York, N. Y.
Charles A. Perera .....New York, N. Y.
William G. Peterson .....Ada, Okla.
Dohrmann K. Pischel..San Francisco, Calif.
E. Clifford Place .....Brooklyn, N. Y.
Adolph Posner .....New York, N. Y.
Harold W. Powers .....Topeka, Kan.

Max Rabbiner .....New York, N. Y.
Joseph Rosenberg .....Buffalo, N. Y.
Harry Rosenwasser .....New York, N. Y.
John Ross .....Bronxville, N. Y.
Nathan S. Rubin .....Pensacola, Fla.

Russell A. Sage .....Indianapolis, Ind.
Clarence J. Schirack .....Canton, Ohio
Abraham Seletz .....Charleston, W. Va.
Albert H. Shafer .....Camden, N. J.
James B. Shannon .....Montclair, N. J.
Ernest A. W. Sheppard ..Washington, D. C.
Eugene C. Smith .....Flint, Mich.
Morley T. Smith .....New Rochelle, N. Y.
William S. Snyder, Jr. .....Frankfort, Ky.
Joseph S. Stovin .....New York, N. Y.

R. Wallace Teed .....Ann Arbor, Mich.
John A. Thorson .....Dubuque, Iowa
Arno E. Town .....New York, N. Y.

Ivan R. Vaile .....Toronto, Ont., Canada
Felix P. S. Vogel .....Palo Alto, Calif.

Ernest A. Weymuller .....New York, N. Y.
Percy T. Whitney .....Worcester, Mass.
Hudson J. Wilson .....Ithaca, N. Y.
Julius Winston .....Philadelphia, Pa.
Benjamin J. Wolpaw .....Cleveland, Ohio
John F. Woodward, Jr. ....Beaumont, Texas

Nelson A. Youngs .....Grand Forks, N. D.

Joshua Zuckerman .....New York, N. Y.
Samuel Zwerling .....Massapequa, N. Y.

4. Voted Inactive Fellow (15 in 1960)

Ellis McFerrin Altfather.....Denver, Colo.
George Maury Campbell .....Inez, Texas
Lee W. Dean, Jr. .....St. Louis, Mo.
Abraham Harold Delman....Brockton, Mass.
Ann Filak-Perez .....Winter Haven, Fla
F. Barker Jones .....Hendersonville, N. C.
Sol Malis .....Escondido, Calif.
Bernard Eugene O'Reilley....St. Paul, Minn.
J. Frederick Sarno .....Johnstown, N. Y.
Harold R. Smithies .....Alameda, Calif.
Walter C. E. Spencer .....Houston, Texas
Gerald David Spero .....Detroit, Mich.
Charles Edward Stanford .....Elcho, Wis.
Otto William Wickstrom...Indianapolis, Ind.
George E. Wilson .....Saranac Lake, N. Y.

5. Deaths from January 1, 1960 to December 31, 1960 (100 Fellows)

George Eli Adkins .....Jackson, Miss.
Robert Elmer Anslow .....Detroit, Mich.
Ralph A. Arnold .....Durham, N. C.

Edwin C. Bach .....Milwaukee, Wis.
Frank Barber .....Lima, N. Y.
Hans Barkan .....San Francisco, Calif.
David I. Bassett .....New York, N. Y.
Ione F. Beem .....Van Nuys, Calif.
Luther Franklin Beetem .....Madison, Ind.
Lynwood Kent Best .....Charleston, S. C.
William Henry Braunlin .....Marion, Ind.
Edgar B. Burchell .....Larchmont, N.Y.
Austin F. Burdick .....Grand Ledge, Mich.
Stanley Sherman Burns .....St. Louis, Mo.

Harold James Cannon .....Milwaukee, Wis.
Julius James Chevigny .....Gary, Ind.
Eugene L. Christensen....Los Angeles, Calif.
Lloyd Houghton Clark .....Penfield, N. Y.
George Morrison Coates....Philadelphia, Pa.
Claude Carr Cody, Jr. .....Houston, Texas
Anthony J. Conty .....Union City, N. J.
John James Crume .....Amarillo, Texas
Arthur Merl Culler .....Columbus, Ohio
Daniel Sylvester Cunning ..New York, N. Y.

Merle Jasper Davis .....Terre Haute, Ind

Frank Garrett Folken .....Albert Lea, Minn.

Emmette T. Gatewood .....Richmond, Va.
Joel Marion Gibbons .....Van Nuys, Calif.
John Henry Gilligan .....Arlington, Va.
Herbert Hartman Glosser ..Wellsville, N. Y.
Thomas Martin Goodwin ....Elkins, W. Va.
Charles William Gosney..Los Angeles, Calif.
Joseph I. Gouterman .....Philadelphia, Pa.
Hendrie Walter Grant .....St. Paul, Minn.

Arthur Stanley Hale .....Detroit, Mich.
Clyde Ernest Harner .....Banning, Calif.
Joshua Harley Harris .....Memphis, Tenn.
Robert Henner .....Chicago, Ill.
Albert Hiram Herr .....Lima, Ohio
William Hewson .....Philadelphia, Pa.
Delos Wylie Hogue .....Rye, N. Y.
Donald MacLean Howell.....Saginaw, Mich.
James Mallernee Huston..San Leandro, Calif.

Leonard Warburton Jones..Rochester, N. Y.

Robert Budd Karkeet.....Portland, Ore.
Samuel Isidor Kaufman .....Chicago, Ill.
Willis E. Keith .....Kansas City, Mo.
P. H. Kilbourne .....Dayton, Ohio

Verne Lee Lance .....Fresno, Calif.
Maurice C. Landau .....Glens Falls, N. Y.
Granville Allen Lawrence .....Towson, Md.
George A. Leahey .....Lowell, Mass.
Mercer Genin Lynch .....New Orleans, La.

Jacob John Mann .....Perth Amboy, N. J.
James Hoyt Maxwell .....Ann Arbor, Mich.
Emil R. Mayerberg .....Wilmington, Del.
George Martin McBean .....Chicago, Ill.
Carl Heber McCaskey .....Indianapolis, Ind.
Gordon Judson McCurdy .....Phoenix, Ariz.
Francis Lambert McGannon.Lakewood, Ohio
Joseph Francis McGowan ...Asheville, N. C.
James W. McKennan .....Washington, Pa.
John Boyd McMurray .....Washington, Pa.
Forrest Wayne Merica .....Lakewood, Ohio
Maurice Elias Mesirow.San Francisco, Calif.
Wade Hampton Miller ....Kansas City, Mo.
George Henry Moore .....Upper Darby, Pa.
Robert Lowry Moorhead ....Brooklyn, N. Y.
William Wallace Morrison.New York, N. Y.

Charles Frederick Nelson....Cleveland, Ohio

Donald H. O'Rourke .....Denver, Colo.

Robert E. Parrish .....San Antonio, Texas
William Campbell Posey, Jr..Bryn Mawr, Pa.
Lowell Bernard Privett .....Boise, Idaho

Harley Winfield Qualls .....Memphis, Tenn.

Aaron Roth .....Brooklyn, N. Y.
Asher Harry Rubenstein ....Syracuse, N. Y.
Edmund W. Rucker, Jr. ...Birmingham, Ala.

Thomas Sage .....Detroit, Mich.
Charles Edward Savery.Deerfield Beach, Fla.
Harry Theodore Schiefelbein.Welch, W. Va.
Harry R. Secoy .....Everett, Wash.
Lardner Moore Shannon ....Montclair, N. J.
Maurice Sher .....Brooklyn, N. Y.
James Jacob Simkins .....Philadelphia, Pa.
Henry Lee Sloan .....Charlotte, N. C.
Dean Stanley Smith .....LaCrosse, Wis.
Franklin Calton Smith .....Charlotte, N. C.
William Jewell Smith .....Fresno, Calif.
Lansford Monroe Spalding ....Astoria, Ore.
Ellis H. Steffensen .....Detroit, Mich.
Frank Charles Sternes .....Cicero, Ill.
James Kennedy Stewart...Wheeling, W. Va.
Leigh F. Sturges .....Manhasset, N. Y.

Eutimio D. Tenaglia.....St. Louis, Mo.

Paul Robert Urmston .....Bay City, Mich.

Clarence A. Veasey, Jr. .....Spokane, Wash.

Arthur J. Wagers .....Philadelphia, Pa.
Henry G. Wincor .....New York, N. Y.
William P. Woodworth .....Detroit, Mich.

6. Delinquent—Voted Dropped from Membership (5 in 1960)

7. Resignations Accepted (4 in 1960)

Tyler David Blasdel ..... Parsons, Kan.
Edmund O. Gates .....Welch, W. Va.
John J. Levbarg .....Flushing, N. Y.
F. Earle Magee .....Oil City, Pa.

8. REPORT ON THE ACADEMY INSURANCE PROGRAM

Programs Presently in Force and Inception Dates

Program 1 — Accident-Sickness Disability Income Protection, July 1, 1952

Program 2—Accidental Death, Dismemberment and Loss of Eyesight Protection, March 1, 1956

Program 3—Professional Liability, March 1, 1956

Program 4 — Business Overhead Expense Insurance, November 1, 1957

Program 5—Major Hospital Insurance, November 1, 1958

Program 6—Group Life Insurance, January 1, 1959

Program 7—Retirement-Annuity, September 1, 1959

Program 8—Accident-Sickness Income Protection for Member's Employees, March 1, 1960

Program 9—Life Insurance for Member's Employees, June 1, 1960

Additions and Changes for 1961-1962

1. The rate of premium on Program 2 will be reduced at least 20 per cent on anniversary date due to good experience.

2. New Family Life Insurance, incorporating the AAOO Educational Fund as partial beneficiary to the Member's (only) benefits, will be made available on optional basis.

3. Additional Accident-Sickness Disability Income benefits will be made available on an optional basis, at low Group Rates.

Benefits Paid Academy Members

$1,860,475.00

(This figure does not include reserves set aside for current and pending claims.)

Total Number of Certificates in Force for Members

6,485

(This figure steadily increases with the passing of each day.)

DETAILS OF THE PROGRAMS

Program 1—Accident-Sickness Disability Income Protection

Initiated July 1, 1952, this Program of Insurance has now been broadened to include a 10 per cent increase in benefits for all claims incurred prior to the insured's sixtieth birthday, 25 per cent reduction in premium for all Members under age 40. Lifetime Accident benefits and 5 years Sickness benefits, two additional plans of coverage, have been added, $125 and $150 weekly. This Program includes in addition to income benefits, Accident-Sickness Hospital benefits of $10 per day for up to 60 days. It further includes partial disability benefits, non-disabling benefits, $10,000 Dread Disease benefits for the family and up to $8,000 of Accidental Death and Dismemberment coverage. All plans include these additional benefits. The rate of premium is as much as 50 per cent less than if the coverage was purchased on an individual basis.

Program 2—Accidental Death, Dismemberment and Loss of Eyesight Protection

This Program provides the insured Member up to $200,000 of coverage on a worldwide 24-hour-day basis. The rate of premium has been reduced on one occasion. This Program has been made available not only to the Member, but to the Member's spouse and dependent children. Further, this Program has been broadened to include an optional plan of Accident Medical Expense coverage either with a $1,000 limit or a $500 limit. At renewal date, March 1, 1962, the rate of premium on the Accidental Death Dismemberment and Loss of Eyesight coverage will be reduced at least 20 per cent.

Program 4—Business Overhead Expense Insurance

This Program provides the insured Member up to $1,000 of benefits per month to cover incurred business expenses. If the Member is disabled as a result of Accident or Sickness, the three outstanding features of this Program are (1) low group premiums, (2) premiums are a tax deductible business expense, (3) benefits are payable after 14 days of disability.

Program 5—$15,000 Major Hospital Insurance

This Program provides the insured Member, his spouse and dependent children maximum hospital expense reimbursement. The maximum limit is applicable to each insured person. If the Member is deceased prior to his spouse, the spouse may continue the Program, at reduced rates, to the renewal date following her seventieth birthday.

Program 6—Group Life Insurance

This Program of Insurance had its inception January 1, 1959, providing the Member maximum coverage at a minimum group premium, on a decreasing term arrangement.

Program 7—Retirement-Annuity

This Program was specifically designed so as to comply with legislation being studied by our Federal Congress, which would provide "independent operators" tax advantage and allowance for personnel pension Programs. It is important to note that this Program provides the Member a 6 per cent advantage over similar Programs purchased on an individual basis.

Program 8—Accident-Sickness Income Protection for Member's Employees

This Program provides up to $300 monthly Accident Sickness benefits for employees of a Member. It relieves the moral obligation of an employer where he must consider his employee when the employee is disabled. Low Group premiums are provided.

Program 9—Life Insurance for Member's Employees

This Program provides maximum Life Insurance at a low annual premium of $25. This outstanding Program has been used in lieu of cash bonuses or salary increases.

NEW COVERAGES AVAILABLE 1961-1962

1. As a result of numerous inquiries, a new Program of Group Life Insurance will be added to the Program that is already in existence. The new Program provides either $12,000 of insurance or $22,000 of insurance for the Member, plus $2,500 for his spouse and $2,500 for his dependent children. The Member may choose either the $12,000 plan or the $22,000 plan. This Program automatically provides that $2,000 of the Member's Life Insurance will be assigned through beneficiary to the American Academy of Ophthalmology and Otolaryngology Educational Fund. The balance of the Coverage may be designated through beneficiary as the Member chooses. This Program will in no way interfere with the present Program that is now in effect for Academy Members.

2. Many Members have requested that additional Accident-Sickness Disability Income Benefits be made available, on an optional basis, to those Members desiring same. Such a Program, providing either $200 per month or $400 per month for Sickness Disability up to two years and Accident Disability up to Lifetime, will be made available on an optional basis at low Group Premiums.

The Group Insurance Programs were approved as presented.

9. HOME STUDY COURSES

Yearly Summary of Activities
October, 1961

At the 1960 Annual Meeting, Dr. Dean M. Lierle was elected Secretary for Home Study Courses, Dr. Peter N. Pastore, Associate for Otolaryngology, and Dr. John W. Henderson, Associate for Ophthalmology.

REGISTRATIONS

The following is a record of registrations for the Home Study Courses since they were started in 1940:

YEAR	OPHTHAL.	OTOLARYNG.	TOTAL
1940-1941	301	114	415
1941-1942	238	117	355
1942-1943	163	81	244
1943-1944	126	74	200
1944-1945	175	84	259
1945-1946	290	112	402
1946-1947	353	191	544
1947-1948	436	220	656
1948-1949	375	230	605
1949-1950	317	184	501
1950-1951	244	117	361
1951-1952	301	130	431
1952-1953	240	105	345
1953-1954	265	111	376
1954-1955	235	134	369
1955-1956	254	125	379
1956-1957	279	156	435
1957-1958	259	122	381
1958-1959	272	171	443
1959-1960	291	189	480
1960-1961	326	169	495
TOTALS	5,740	2,936	8,676

A year ago we predicted that the 1960-1961 registrations would be about the same as for the previous year, with an increase in Ophthalmology and a decrease in Otolaryngology. Enrollments as of October 1, 1961 are: Ophthalmology 280, Otolaryngology 179, Total 459. This shows that at the present there has been a decrease in Ophthalmology and an increase in Otolaryngology.

Some comparative figures on the percentage of registrants who have sent in all papers for the Courses:

YEAR	OPHTHALMOLOGY	OTOLARYNGOLOGY
1956-1957	33	36
1958-1959	42	43
1959-1960	40	47
1960-1961	43	48

FACULTIES

During the past year the following changes have been made in the faculties:

New Appointments

For Ophthalmology
- J. Lawton Smith (Associate for Embryology, Anatomy and Neuro-anatomy)
- Robert A. Moses (Associate for Physiology)
- Gerald Fonda (Associate for Refraction)
- Goodwin M. Breinin (Associate for Extraocular Muscles)

For Otolaryngology
- Brian F. McCabe (Associate for Anatomy)
- John F. Daly (Associate for Principles of Surgery)
- Harold G. Tabb (Associate for Pathology)
- Maurice Schiff (Associate for Physiology)
- Ludwig A. Michael (Associate for Hearing Function and Testing)
- Malcolm H. Stroud (Associate for Vestibular Function and Testing)
- James Jerger (Associate for Otological Acoustics)

Changes in Status

For Ophthalmology

Resigned:
- Charles J. Campbell

For Otolaryngology

Senior to Consultant:
- Donald H. Eldredge
- Victor Goodhill
- George F. Reed
- Harold F. Schuknecht

Associate to Senior:
- Walter P. Covell
- Aram Glorig
- Norman Jesberg
- Joseph H. Ogura
- Frederic J. Pollock
- William H. Saunders
- Edwin A. Stuart

Resigned:
- David D. DeWeese
- Leland G. Hunnicutt

PUBLICITY

During the past year announcements of the Home Study Courses were advertised in:
- Specialty journals for Ophthalmology and Otolaryngology
- Posters sent to heads of departments of Ophthalmology and Otolaryngology in medical schools, and in hospitals approved for residency training
- Listing in the Postgraduate Courses issue of the AMA Journal
- Miscellaneous editorials and announcements in the Academy TRANSACTIONS

PRE-LUNCHEON MEETINGS

During the 1960 Meeting the Ophthalmology and Otolaryngology faculties met separately before the Faculty Luncheon, for brief discussions of matters related to their respective Courses. A favorable vote resulted in the decision to have similar meetings again in 1961.

DISCUSSION PERIODS

Discussion Periods directed by the Home Study Course in Ophthalmology and in Otolaryngology are scheduled as a part of the 1961 program of instruction courses. Ophthalmology is set up as a twelve-hour continuous course and Otolaryngology as a three-hour continuous course.

EXHIBIT

The Home Study Courses exhibit is omitted this year due to a lack of space.

FREE REGISTRATION FOR THE ACADEMY MEETING

Registrants for the 1960-1961 Home Study Courses were offered free registration at the annual Academy meeting this year.

Miss Maud Givens who has served as Registrar of the Home Study Courses since their inception in 1940, resigned as of August 1, 1961. After many years of faithful and devoted service to the Academy Miss Givens has decided to retire from active duty.

Miss Maureen Wermager was recommended as Registrar of the Home Study Courses to succeed Miss Maud Givens. Recommendation was approved.

Dr. Benedict moved that the report on Home Study Courses be approved. The motion was seconded by Dr. LeRoy Schall and carried.

INTERIM BUSINESS

10. On October 26, the President appointed Dr. Robert L. Tour to fill the unexpired term of Dr. Frederick Cordes as Academy representative to the American Committee on Optics and Visual Physiology. Doctor Cordes had submitted his resignation, to take effect immediately, at the October meeting of the Committee.

11. At the suggestion of Dr. Dunnington, who had been in correspondence with Sir Stewart Duke-Elder, Dr. Pischel endorsed Dr. Derrick Vail's appointment to fill the unexpired term of Doctor Espildora Luque on the Council of the International Federation of Ophthalmological Societies.

12. The plight of Cuban refugees in Florida was brought to the attention of the Academy by Dr. J. Wesley McKinney, Secretary of the Pan-American Association of Ophthalmology and several individual members. The Section of Postgraduate Medical Education, Department of Medicine, University of Miami School of Medicine, had established courses of instruction for Cuban doctors, including ophthalmologists and otolaryngologists. On March 16, the President authorized the Secretary to conduct a mail ballot of the Council, recommending that the Academy send a contribution of $3,000 to the Department of Medicine, University of Miami School of Medicine, for the relief of Cuban refugee doctors. The vote was unanimous in favor of the recommendation. The sum of $3,000.00 was sent to Emil P. Taxay, M.D., Director of the Miami project. A letter from Doctor Taxay to President Dohrmann Pischel on April 10, 1961, reads as follows:

"Your organization may rest assured that what you have made possible is a heart warming experience. The doctors to whom I refer were a depressed and dejected group. They were performing inappropriate jobs and had become spiritless and ineffective. Through our Programs their attitude changed and their faces began to light up. Please know that the thanks of this Department and School of Medicine joins the thanks of the Exiled Cubans."

13. In August the Academy Office was informed of the resignation of Mr. Howard Carter from the Committee on the Conservation of Hearing. After consultation with several members of the Council, it was decided to give Howard Carter the Academy's Award of Merit in grateful recognition of his many years of service to the Academy. Mr. Carter had earned eight points of the ten usually required to receive this award. The award will be presented at the Joint Session, Monday, October 9.

RESEARCH

14. The Academy is Principal Investigator for the following grants from the NINDB.

The grant for Diagnostic Procedures and Therapy in Uveitis is now in its fourth year and has been approved for an additional year in the same amount.

The Subcommittee on Hearing in Children of the Committee on the Conservation of Hearing is continuing its research in the public schools of Pittsburgh and Baltimore, in conjunction with the University of Pittsburgh and Johns Hopkins Hospital and the Children's Bureau. The grant from the NINDB has been renewed for another year and will probably be extended.

The grant for an Employment Registry of Scientists in the basic sciences appertaining to ophthalmology and to otolaryngology has been renewed for another year.

An application for a grant for support of a training program at the AFIP has been filed by the Academy through the Committee on Ophthalmic Pathology and will be considered at the November meeting of the Council of the NINDB.

15. A Temporal Bone Center, sponsored by the Deafness Research Foundation and authorized by the Council in October 1960, was temporarily set up at Rochester, Minnesota, in the office of the Secretary of the Academy. The Center has recently been transferred to the University of Chicago Dr. John R. Lindsay, Director.

Dr. Benedict moved that the report of the Secretary be accepted as read. The motion was seconded by Dr. LeRoy Schall and carried.

II

The Treasurer, Dr. Benedict, submitted the audit for 1960 made by Broeker & Henderson, Certified Public Accountants, and the financial status of the Academy as of August 31, 1961. (*The audit for* 1960 *appeared in the July-August* 1961 *issue of the* TRANSACTIONS. *The financial status of the Academy as of August* 31, 1961, *uncertified, is published herewith.*)

EXHIBIT "A"

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY
Balance Sheet as of August 31, 1961

ASSETS

GENERAL FUND			
Current Assets			
Cash on hand		$ 25.00	
Cash in banks:			
Northwestern National Bank of Rochester	$ 74,858.16		
Olmsted Savings and Loan Ass'n, Rochester	56,396.67		
Rochester Building and Loan Ass'n, Rochester	56,187.58		
Bank of Montreal, Toronto, Canada	7,266.73	194,709.14	
Membership dues, delinquent		1,052.50	
Accounts receivable, others		9,371.18	
Inventories:			
Abstracts, Manuals, Monographs and Bound Volumes	$ 30,687.55		
ATLAS OF OTOLARYNGIC PATHOLOGY	10,170.48		
ATLAS OF STAPES OPERATIONS IN 3-D AND VIEWER	6,756.14		
Album of EMBRYOLOGY OF THE EAR prints	226.49		
Slides of EMBRYOLOGY OF THE EYE film	1,180.00	49,020.66	
Total current assets			$254,178.48
Investments			
Wherry Memorial Lecture Fund:			
Rochester Building and Loan Ass'n, Capital Stock			5,400.00
Fixed Assets			
EMBRYOLOGY OF THE EAR film project	$104,516.62		
Less: Reserve for depreciation	66,675.08	$ 37,841.54	
EMBRYOLOGY OF THE EYE film project	$ 41,775.00		
Less: Reserve for depreciation	41,338.75	436.25	
Furniture and fixtures	$ 22,269.82		
Less: Reserve for depreciation	14,884.76	7,385.06	45,662.85
Deferred Charges			
Prepaid expenses		$ 104.06	
Prepaid insurance		536.10	
Prepaid postage		13.42	
TOTAL ASSETS—GENERAL FUND			$305,894.91
EDUCATIONAL TRUST			
Current Assets			
Cash on hand—Principal account		$ 130.86	
Cash in First National Bank, Minneapolis		905.24	
Total current assets			1,036.10
Investments			
Stocks and bonds			375,410.83
TOTAL ASSETS—EDUCATIONAL TRUST			$376,446.93
TOTAL ASSETS			$682,341.84

Liabilities and Net Worth

GENERAL FUND

Current Liabilities

Accounts payable		$ 10,837.67	
Accrued Withholding tax		797.55	
Accrued F.I.C.A. tax		202.50	
Audiometer Testing Stations		1,000.00	
Deferred payments:			
Manuals	$ 10.00		
Bound Volumes, 1961	4,140.00		
Membership dues	55.00	4,205.00	
Total current liabilities			$ 17,042.72

Undisbursed Special Funds

N.I.H. Grants-in-Aid:			
Grant B2359—Use of Diagnostic Procedures and Therapy in Uveitis	$ 36,719.00		
Grant B2375—Conservation of Hearing in Children	87,798.88		
Grant 2-B-5296—Employment Registry for Scientists	3,431.63	$127,949.51	
Subcommittee on Conservation of Hearing in Children fund		3,340.69	
Temporal Bone Bank fund		413.94	
Wherry Memorial Lecture fund		6,144.55	137,848.69

Net Worth

Surplus—January 1, 1961		$ 56,502.58	
Excess income over expenses—year to date		94,500.92	151,003.50
TOTAL LIABILITIES AND NET WORTH—GENERAL FUND			$305,894.91

EDUCATIONAL TRUST

Current Liabilities

Accrued payroll taxes		$ 280.00	
General fund		177.32	
Total current liabilities			$ 457.32

Net Worth

Surplus—January 1, 1961		$377,103.50	
Excess expenses over income—year to date		1,113.89	375,989.61
TOTAL LIABILITIES AND NET WORTH—EDUCATIONAL TRUST			$376,446.93
TOTAL LIABILITIES AND NET WORTH			$682,341.84

Dr. Benedict moved that the report of the Treasurer be accepted. Dr. Schall seconded the motion, which carried.

III

REPORT OF EDITOR OF TRANSACTIONS

October 1, 1961

During the year just past, an average of 8,896 copies of the TRANSACTIONS were printed bimonthly. Of these 1,000 were set aside for bound volumes, and an average of 7,844 mailed, an increase in circulation of 165 over last year. The following categories are represented.

Fellows	6,828
Candidates	146
Subscribers	553
Libraries	112
Exchange and Miscellaneous	85
Advertisers and Agents	65
Complimentary	48
Single Copies	64

Eight hundred and thirty orders for the 1961 bound volumes have been received to date.

The *revenue* from the TRANSACTIONS for the period from September 1, 1960, through August 31, 1961, was as follows:

Subscriptions:	
Members	$40,852.00
Candidates	1,253.00
Nonmembers	5,953.00
Bound Volumes	4,373.50
Single Issues	222.00
American Orthoptic Journal	1,022.00
Advertising	23,619.68
Cuts and Engraving	170.00
Reprints	1,782.36
Total Revenue	$79,247.54

The *expenditures* for the TRANSACTIONS for the period from September 1, 1960, through August 31, 1961, were as follows:

Bimonthly Issues	$45,059.61
Bound Volumes	2,277.94
American Orthoptic Journal	7,695.00
Cash Discount Allowed	403.69
Cuts and Engraving	2,005.50
Envelopes and Paper Stock	12,668.73
Freight and Express	52.71
General Expense	88.41
Postage	2,229.76
Reprints	2,734.43
Salaries	14,300.00
Social Security Tax	397.50
Total Expenditures	$89,913.28
Expenditures over Revenue	$10,665.74

The past six issues have averaged 171.5 pages per issue, exclusive of advertising and including news notes, directory of societies, committee reports, positions available and miscellaneous notices. The Directory of Ophthalmologic and Otolaryngologic Societies is printed twice a year, in the March-April and the September-October issues.

The average number of pages of paid advertising was 30.83, representing 40 advertisers.

Three new manuals: "Ophthalmic Plastic Surgery" by Wendell L. Hughes, M.D., and other members of the Committee on Plastic Surgery for Ophthalmology; "Malformations and Anatomical Variations Seen in the Middle Ear During Operations on the Stapes" by Jack Van Doren Hough, M.D.; "Sensorimotor Anomalies of the Extrinsic Ocular Muscles" by Glen G. Gibson and Robison D. Harley; and a monograph, "Allergy of the Eye" by Frederick Theodore, M.D., have been published during the past year. A fourth edition of "Cataract Types" by Frederick C. Cordes is also just off the press.

A manual, "The Cataract Operation: A Study of Details" by Kenneth L. Roper, M.D., and the second edition of "Vocal Rehabilitation" by Friedrich S. Brodnitz, M.D., are now in press.

The stereoscopic atlas, "Stapes Operations in 3-D" by J. Brown Farrior was published elsewhere.

The eleventh volume of the American Orthoptic Journal was published in June. The number printed was 3,000. Following the policy adopted three years ago, the Journal is sent free only to those members of the Academy requesting it. It is mailed on subscription to all members of the American Association of Orthoptic Technicians in good standing.

Dr. Benedict moved the acceptance of the Report of the Editor. The motion was seconded by Dr. Kenneth L. Roper, and carried.

IV

The Necrologist's Report to the Council was presented by Dr. Benedict This report was published in the September-October 1961 issue of the TRANSACTIONS.

President Pischel instructed the Executive Secretary-Treasurer to file the report in the permanent records of the Academy.

V

OLD BUSINESS

1. At the 1960 meeting of the Council, the matter of a new classification of membership, "Corresponding Fellow," was considered. A Committee of John Dunnington, Chairman; Edwin Dunphy, Victor Goodhill and Harry Schenck was appointed to assist the Executive Secretary-Treasurer in a thorough study of the advisability of such action and to report at the next Council Meeting. Their report follows:

REPORT OF COMMITTEE TO STUDY ADVISABILITY OF ESTABLISHING A TYPE OF MEMBERSHIP — "CORRESPONDING MEMBER"

The committee has considered the necessity of evaluating a candidate's credentials who has not been certified as a specialist by a National Board acceptable to the Council. There are two categories provided in the Constitution and By-Laws for membership in the Academy by persons in the medical discipline who are not certified. Anyone who has signally aided the progress of medicine in its relation to diseases of the eye, ear, nose or throat may be elected an Honorary Fellow. They shall not be required to pay fees or dues and shall enjoy all the privileges of Active Fellows except those of voting and holding office. Another category that does not require certification as a specialist is that of Associate Fellow. Associate Fellows may be elected from fields allied to Ophthalmology and Otolaryngology. Although they are not eligible to Active Fellowship and cannot vote or hold office, they have all other privileges of Fellowship, including insurance and receipt of the TRANSACTIONS. Associate Fellows pay dues equal to one-half the dues of Active Fellows. The current dues of Associate Fellows is $12.50.

It is the opinion of the committee that the category of Associate Fellow is equivalent to that of Corresponding Member of many foreign societies. Associate Fellows may not automatically become Life Fellows after 25 years in good standing and Fellowship may be terminated by direction of the Council for any of the reasons applying to all classes of Fellows.

The constitutional provisions for Associate Fellowship and Honorary Fellowship are adequate for the privileges requested of the Council, and the committee recommends no changes in constitutional classes of membership.

Respectfully submitted,

[Signed] EDWIN B. DUNPHY, M.D.
[Signed] VICTOR GOODHILL, M.D.
[Signed] HARRY P. SCHENCK, M.D.
[Signed] JOHN H. DUNNINGTON, M.D.
Chairman

Dr. Frederick Hill moved that the report and recommendations of the Committee be accepted. The motion was seconded by Dr. Ruedemann and carried.

2. At the Council meeting in October 1960, Drs. Jack R. Anderson, George E. Shambaugh, Jr., and Theodore E. Walsh appeared to present to the Council "a request to the Academy, as the representatives of the largest organized group of Eye, Ear, Nose and Throat Specialists in the United States, to take appropriate action in the form of a protest to the American Medical Association and authoritative Boards in organized medicine in regard to the recent articles on Plastic Surgery which have maligned the segment of our specialty which concerns itself with that type of work."

On motion by Dr. James Allen, seconded by Dr. Victor Goodhill and passed unanimously by the Council, a letter (Jack R. Anderson, M.D. to W. L. Benedict, M.D., September 14, 1961) was sent to Dr. L. A. Buie, Secretary of the Advisory Board of Medical Specialties. The matter was presented by Dr. Anderson personally to the annual meeting of the Advisory Board in Chicago on February 4, 1961. The report of the Board is published in the Proceedings of the Annual Meeting of the Advisory Board for Medical Specialties, February 14, 1961, pages 13 to 16. There was no agreement by the Board as to its function in this and similar matters and no action was taken.

However, in a letter from Dr. Buie to Dr. Jack R. Anderson dated April 10, 1961, and published in the Transactions of the American Otorhinologic Society for Plastic Surgery, Vol. IV, 1961, page 11, is the following state-

ment concerning "the result of discussions that took place during the meeting of the Committee on Standards on February 3, 1961." "The decision was reached that the difficulty of the American Board of Plastic Surgery is only a part of a general problem involving other factors of equal significance and that the Advisory Board should assume some responsibility for initiating an investigation. It was agreed that this is a job which will require participation by other organizations such as the American Medical Association, the American Hospital Association, the American College of Surgeons and possibly others; plans for establishing such a conjoined effort are under way now."

Dr. Dean M. Lierle moved that the Academy's participation in this matter be concluded. The motion was seconded by Dr. Schall, and carried.

VI

COMMUNICATIONS

1. The National Society for Medical Research suggests the appointment of an Academy representative to their organization. (Referred to Executive, Research and Finance Committee for consideration.)

2. The International Federation of Ophthalmological Societies has asked us to appoint a delegate from the Academy to their meeting to be held in New Delhi early in December 1962 at the time of the XIX International Congress of Ophthalmology. (Referred to the Executive, Research and Finance Committee.)

3. MEDICO, Inc., proposes that the Academy give them their professional support as a collaborating medical professional society. They suggest that we might appoint a Special Committee representing ophthalmology and otolaryngology; the Chairman of such a Committee would be liaison and point of contact between MEDICO and the officers of the Academy. (Referred to the Executive, Research and Finance Committee.)

4. Drs. David Brewer, John Daly, Alden Miller, Charles Norris and Joseph Ogura request that the Council establish a Committee on Laryngeal and Voice Physiopathology. (Referred to the Executive, Research and Finance Committee.)

5. Dr. Alfred Kestenbaum proposed that under the leadership of the four United States ophthalmological societies, a new organization, the U.S.A. Association of Ophthalmologists be formed. Such a U.S.A. Ophthalmological Association could play a united and dignified role, and an adequate representation for such a national association in the International Ophthalmological Society, adequate to the number and quality of its members, would, undoubtedly, be justified.

Dr. Roper moved that this proposal be dropped. The motion was seconded by Dr. Gibson, and carried.

6. The Secretary has been in communication with the New York Hilton Hotel and the Americana in New York regarding proposed meeting dates of the Academy for the years 1963 and 1964. Information on the facilities of these two hotels is available for your inspection at this meeting. (This matter was referred to the Executive, Research and Finance Committee for its consideration and recommendation to the Council as a whole.)

7. The Academy Committee on Ophthalmic Pathology has proposed a resolution to be forwarded to the American Medical Association regarding the necessity of pathological examination of tissues obtained during certain ophthalmic operations. (Dr. Hogan, chairman of the Committe, moved that this proposal be dropped. The motion was seconded by Dr. Gibson, and carried.)

9. The Deafness Research Foundation is planning to collaborate with the American Telephone and Telegraph Company, through the Bell Telephone Company, to set up a Scientific Exhibit for the World's Fair to be held in New York in 1964. It has been suggested that the Committee on Conservation of Hearing cooperate with the Deafness Research Foundation in the sponsorship of this exhibit. (Dr. Lierle, chairman of the Committee on Conservation of Hearing, suggested that this matter be referred to the Committee for consideration at its December meeting. The matter has the approval of the Council pending action by the Committee.

VII

Report of the Executive, Research and Finance Committee — Dr. Dohrmann Pischel, Chairman.

1. The Committee recommends that the application fee for fellowship in the Academy continue to be $25.00; and that for the year 1962 the annual dues for Active Fellows shall be $25.00; for Associate Fellows, $12.50. The allotment from dues and from application fees for subscriptions to the TRANSACTIONS shall be continued at $7.00.

2. The Committee recommends that three Fellows who have been delinquent in the payment of dues for a period of more than three years be dropped from the Academy roster.

3. The Committee recommends that the resignations of six Fellows be accepted.

Charles Ernest Gardiner .....Lebanon, Pa.
Thomas Quincy Garvey, Jr..New York, N. Y.
Arthur Quito Penta .....Schenectady, N. Y.
Casper Whittle Pond .....Pocatello, Idaho
John Andrews Putnam..Santa Barbara, Calif.
Elmer Roberts Shepherd ..Washington, D. C.

4. The Committee recommends that the requests of nine Fellows for Inactive Status be granted.

Mario Amenabar .....Santiago, Chile
Harold Jesse Cawthorne .....Coloma, Mich.
Thomas Ewell Hunt .....Paris, Texas
Jerome William Hayden ....River Forest, Ill.
Theodore James Hughes ....Riverside, Calif.
Julius F. Neuberger .....New York, N. Y.
Wilko Gruver Scanlon .....Acton, Calif.
Ora Harold Wagman .....Boston, Mass.
Frank Wojniak .....St. Petersburg, Fla.

5. The Committee recommends that the request of one Fellow for temporary discontinuation of membership because he is living outside the United States be denied, and that the Executive Secretary-Treasurer write to him suggesting that he resign now and reapply when he wishes to become a Fellow.

6. The Committee recommends the following appointments:

As Chairmen of Standing and Joint Committees for the year 1962:

To the Committee on Audio-Visual Education, Dean M. Lierle

To the Committee on Conservation of Hearing, Dean M. Lierle

To the Committee on Eye Banks, R. Townley Paton

To the Committee on Prosthetic Devices (formerly the Committee on Implants and Implant Techniques), A. D. Ruedemann, Sr.

To the Committee on Ophthalmic Pathology, Michael J. Hogan

To the Committee on Otolaryngic Pathology, Paul H. Holinger

To the Committee on Reconstructive Plastic Surgery, John Marquis Converse and Wendell L. Hughes as Co-chairmen

To the Committee on Research in Otolaryngology, Gunnar O. Proud

To the Committee on Scientific Exhibit, Kenneth L. Roper, Chairman, and Eugene L. Derlacki, Co-chairman

To the Committee on Standardization of Tonometers, E. J. Ballintine

To the Committee on Surgery of the Head and Neck, George A. Sisson

To the Teachers' Sections: Ophthalmology, A. D. Ruedemann, Sr.; Otolaryngology, Eugene L. Derlacki

As Representatives of the Academy to:

American Association for the Advancement of Science, M. Elliott Randolph

American Board of Ophthalmology, Leonard Christensen, for a 4-year term beginning January 1962

American Board of Otolaryngology, Francis E. LeJeune and George F. Reed

American College of Surgeons, Board of Governors for the term ending in 1965, nomination deferred pending examination of the American College of Surgeons official roster

American Committee on Optics and Visual Physiology, Robert L. Tour, for a 3-year term beginning January 1962

American Orthoptic Council, Marshall Parks, for a 3-year term beginning January 1962

American Standards Association, Acoustical Standards Board, Edmund P. Fowler, Jr.

American Standards Association, Committee for Standardization of Ophthalmic Lenses, Carl J. Rudolph and Arthur Linksz

Institute for Advancement of Medical Communications, Council on Medical Television, William L. Benedict

International Organization Against Trachoma, Phillips Thygeson

National Committee on Research in Ophthalmology and Blindness, Bernard Becker and A. Edward Maumenee

National Congress of Parents and Teachers, Frank D. Costenbader

National Society for Crippled Children and Adults, Inc., Dean M. Lierle

7. The Committee recommends approval of the following interim appointments:

To the VII International Congress of Otolaryngology, July 23-29, 1961, Paris, Paul Holinger and Arthur W. Proetz

To the American Committee on Optics and Visual Physiology, for the unexpired term of Frederick Cordes ending December 31, 1961, Robert L. Tour

8. The Committee recommends the formation of a new committee on Laryngeal and Voice Physiopathology, with David Brewer as Chairman.

It further recommends that Derrick Vail be appointed as delegate to the International Federation of Ophthalmological Societies at the meeting to be held during the XIX International Congress of Ophthalmology, December 1962.

The Committee also recommends the appointment of William L. Benedict to represent the Academy in the following organizations:

National Council of the National Society for Medical Research, and the Medical Advisory Council of MEDICO, Inc.

The Committee recommends that the suggestion for the formation of a new organization, the U.S.A. Association of Ophthalmologists, be dropped.

9. The Committee recommends the nomination of William L. Benedict as Editor-in-Chief of the TRANSACTIONS.

10. The Committee recommends that the next annual meeting of the Academy be held November 4 to 9, 1962, at the Las Vegas Convention Center, Las Vegas, Nevada.

11. The Committee recommends that the Council direct the Executive Secretary-Treasurer to commit the Academy to dates at various hotels up to five years in advance.

12. The Committee recommends the following appropriations for the calendar year 1962:

To the Committee on Conservation of Hearing, a sum not to exceed $20,000; $7,500 of this to be earmarked for the Subcommittee on Noise to be used for educational purposes, and $5,000 to be earmarked for the Subcommittee on Hearing in Children.

To the Committee on Eye Banks, $500.

To the Committee on Research in Otolaryngology, $2,000 for cash awards.

To the Committee on Standardization of Tonometers, $2,000.

To the Committee on Surgery of the Head and Neck, $500.

To the American Committee on Optics and Visual Physiology, $200.

To the American Orthoptic Council, $200.

To the International Federation of Ophthalmological Societies for dues for the year 1962, $300.

To the National Society for Medical Research, $1,000.

To the salary of a consultant at the Armed Forces Institute of Pathology, $7,000.

To the Registries of Pathology, $2,500.

13. The Committee recommends that the proposal of a "Rationale for Formation of Ophthalmic Teams for Foreign Service," referred to the Committee by the 1960 Council, be rejected.

Dr. Dunnington moved to reject the proposal for formation of ophthalmic teams. The motion was seconded by Dr. Goodhill and carried.

Dr. Dunnington moved to accept the report of the Executive, Research and Finance Committee. The motion was seconded by Dr. Schall and carried.

VIII

Report of the Activities Committee—Dr. Victor Goodhill, Chairman.

The Committee recommends acceptance of reports from the following Standing Committees:

Audio-Visual Education
Conservation of Hearing
Eye Banks
Implants and Implant Techniques
Ophthalmic Pathology
Otolaryngic Pathology
Research in Otolaryngology
Standardization of Tonometers
Surgery of the Head and Neck

The Committee further recommends acceptance of the reports of representatives of the Academy to the following organizations:

American Association for the Advancement of Science
American Board of Ophthalmology
American Board of Otolaryngology
American College of Surgeons, Board of Governors
American Committee on Optics and Visual Physiology
American Orthoptic Council
American Standards Association, Acoustical Standards Board
American Standards Association, Committee for Standardization of Ophthalmic Lenses
Institute for Advancement of Medical Communication, Council on Medical Television
National Committee on Research in Ophthalmology and Blindness
National Congress of Parents and Teachers
National Society for Crippled Children and Adults, Inc.

It is understood that these reports will be published in the November-December 1961 issue of the TRANSACTIONS.

Dr. Dunnington moved that the report be accepted. The motion was seconded by Dr. Roper, and carried.

IX

Report of the Board of Councillors—Dr. Victor Goodhill, Chairman.

1. The Board of Councillors recommends acceptance for membership of 189 candidates who have fulfilled the requirements for membership. This includes the following candidates who were listed as incomplete but who have since completed the requirements:

Armando Tantoco Chiong, Baltimore

Edward Grom, Caracas, Venezuela

Raymond Harrison, Boston

2. The Board recommends the acceptance of three candidates who have applied for Associate Fellowship:

A. Bruce Graham, Detroit

Enrique Kronheim Rabinovitz, Mexico City

Philip E. Rosenberg, Philadelphia

3. The Board recommends nomination of the following officers for 1962:

President: Lawrence R. Boies, Minneapolis

President-Elect: A. D. Ruedemann, Detroit

First Vice-President: Wendell Hughes, Hempstead, N. Y.

Second Vice-President: John Lindsay, Chicago

Third Vice-President: Hermann Burian, Iowa City

Councillor: Francis Lederer, Chicago

Executive Secretary-Treasurer: W. L. Benedict, Rochester, Minn.

The report of the Board of Councillors was accepted as read.

XI

NEW BUSINESS

1. Dr. Benedict nominated the following secretaries for 1962:

Kenneth L. Roper, Secretary for Ophthalmology

Clair M. Kos, Secretary for Otolaryngology

Glen G. Gibson, Secretary for Instruction in Ophthalmology

Eugene L. Derlacki, Secretary for Instruction in Otolaryngology and Maxillofacial Surgery

Dean M. Lierle, Secretary for Home Study Courses

Dr. Benedict moved the acceptance of the nominations. Dr. Schall seconded the motion, which carried.

Dr. Schall moved that the meeting be recessed until 12:45 p.m., Wednesday, October 11, 1961.

Wednesday, October 11, 1961

1. The Executive Secretary-Treasurer read a communication from Dr. John Harry King suggesting re-activation of the Armed Forces Committee. After discussion, the matter was tabled.

2. A letter was read which had been referred to the Council by Dr. Holinger, chairman of the Committee on Otolaryngic Pathology. The letter was sent by Colonel J. M. Blumberg, Acting Director of the Armed Forces Institute of Pathology, to the Jacques Holinger Memorial Fund requesting information as to whether that organization could contribute a print of Dr. Holinger's film "A Bronchoscopic Clinic in Kodachrome" to the Institute. The Committee on Otolaryngic Pathology recommended that the Academy buy a print of the film for the AFIP and other films which were pertinent. Dr. Holinger estimated that the cost of the above-mentioned film would be $150 or $200. Other films which he has could be purchased at the same price.

A motion to purchase a print of this film for the AFIP, and possibly other films up to $1,000, was seconded and carried.

3. The Committee on Otolaryngic Pathology also recommended that the Academy contribute to the Registry of Otolaryngic Pathology fifty copies of the Atlas of Otolaryngic Pathology to be loaned, together with the slide sets, for outside study.

A motion to make such a contribution was seconded and carried.

4. Dr. Benedict reported that Dr. Holinger had inquired whether the Academy would reimburse him for office expenses incurred in the management of the Committee on Otolaryngic Pathology.

Dr. Goodhill made a motion that such expenses be honored up to $250. The motion was seconded by Dr. Hogan and carried.

5. Dr. Benedict suggested to the Council that it set up a category of Junior Member to include those who were not yet eligible for Active Fellowship. He proposed that the committee appointed in 1960 to study the proposal for Corresponding Fellow be retained to study this new proposal. The Committee includes Dr. Dunnington, Chairman; Dr. Dunphy, Dr. Goodhill, Dr. Schenck.

By authority of the Council, the President so ordered.

The meeting adjourned sine die.

ANNUAL BUSINESS MEETING

Thursday, October 12, 1961, 5:30 p.m.

PRESIDENT PISCHEL: The Business Meeting of the Sixty-Sixth Annual Session of the American Academy of Ophthalmology and Otolaryngology will come to order.

The first item on the agenda is the report of the Executive Secretary, Dr. William L. Benedict.

DR. BENEDICT: I am submitting to you a condensed report. Further detailed information is available in the files of the Academy.

The fellowship as of January 1, 1961, which is the beginning of our fiscal year, was:

Active	5,858
Life	1,010
Honorary	29
Inactive	141
Associate	12
Total	7,050

One hundred and eighty-nine candidates who had completed all requirements for membership have been considered by the Council and recommended for Active Fellowship. Three candidates have been recommended for Associate Fellowship.

One hundred and six deaths have been reported since our last Annual Meeting.

Six Fellows have tendered their resignations during the year. Requests for inactive status have been approved for nine Fellows. Three Fellows have been dropped for nonpayment of dues for a period of more than three years.

Mr. President, I move the acceptance of this portion of the report.

The motion was seconded by Dr. Clair Kos and carried.

PRESIDENT PISCHEL: The next item on the agenda is the report of the Treasurer, Dr. Benedict.

DR. BENEDICT: The certified accountant's audit of the affairs of the Academy as of December 31, 1960, was published in the July-August 1961 issue of the TRANSACTIONS. It is a rather lengthy report, and inasmuch as it has been published, I question whether you want to hear the report in full.

PRESIDENT PISCHEL: What is your pleasure?

Dr. Kenneth Roper moved that the reading of the Treasurer's report be omitted. The motion was seconded by Dr. Rudolf Aebli and carried.

PRESIDENT PISCHEL: Next is the report of the Senior Member of the Council, Dr. LeRoy Schall. It was necessary for Dr. Schall to return home, and the report will be read by Dr. Erling Hansen.

DR. HANSEN: Mr. President and members of the Academy: The Council has received and approved the reports of the Executive Secretary-Treasurer, the Editor of the TRANSACTIONS, the Council Committees, and joint and standing committees. These reports will be published in the November-December 1961 issue of the TRANSACTIONS.

The Council recommends that the application fee for fellowship in the Academy shall remain at $25.00; the annual dues for Active Fellows, at $25.00; and for Associate Fellows, at $12.50.

Mr. President, I move the adoption of this recommendation.

The motion was seconded by Dr. Roper and carried.

DR. HANSEN: The Council recommends the following appropriations for the year 1962 contingent upon request:

To the Committee on Conservation of Hearing, a sum not to exceed $20,000; $7,500 of this to be earmarked for the Subcommittee on Noise, to be used for educational purposes, and $5,000 to be earmarked for the Subcommittee on Hearing in Children.

To the Committee on Eye Banks, $500.

To the Committee on Research in Otolaryngology, $2,000 for cash awards.

To the Committee on Otolaryngic Pathology, a sum not to exceed $250.

To the Committee on Standardization of Tonometers, $2,000.

To the Committee on Surgery of the Head and Neck, $500.

To the American Committee on Optics and Visual Physiology, $200.

To the American Orthoptic Council, $200.

To the International Federation of Ophthalmological Societies for dues, $300.

To the National Society for Medical Research, $1,000.

To salary of a consultant at the Armed Forces Institute of Pathology, $7,000.

To the purchase of motion picture films for the educational program of the Registry of Otolaryngic Pathology, up to $1,000.

To the Registries of Pathology, $2,500.

Mr. President, I move the adoption of these recommendations.

The motion was seconded by Dr. Everett Goar and carried.

DR. HANSEN: The Council recommends the following appointments as chairmen to the standing and joint committees for the year 1962:

To the Committee on Audio-Visual Education, Dr. Dean M. Lierle.

To the Committee on Conservation of Hearing, Dr. Dean M. Lierle.

To the Committee on Eye Banks, Dr. R. Townley Paton.

To the Committee on Implants and Implant Techniques, Dr. A. D. Ruedemann.

To the Committee on Ophthalmic Pathology, Dr. Michael J. Hogan.

To the Committee on Otolaryngic Pathology, Dr. Paul H. Holinger.

To the Committee on Reconstructive Plastic Surgery, Dr. John Marquis Converse and Dr. Wendell L. Hughes, Co-Chairmen.

To the Committee on Research in Otolaryngology, Dr. Gunnar Proud.

To the Committee on Scientific Exhibit, Dr. Kenneth L. Roper, Chairman; Dr. Eugene L. Derlacki, Co-Chairman.

To the Committee on Standardization of Tonometers, Dr. Elmer J. Ballintine.

To the Teachers' Section, Dr. A. D. Ruedemann, Chairman for Ophthalmology, and Dr. Eugene L. Derlacki, Chairman for Otolaryngology.

Mr. President, I move the adoption of these recommendations.

The motion was seconded by Dr. Daniel Snydacker and carried.

DR. HANSEN: The Council recommends the formation of a Committee on Laryngeal and Voice Physiopathology, with Dr. David Brewer as Chairman.

Mr. President, I move the adoption of this recommendation.

The motion was seconded by Dr. Lawrence R. Boies and carried.

DR. HANSEN: The Council further recommends the following appointments as representatives of the Academy to:

American Association for the Advancement of Science, Dr. M. Elliott Randolph.

American Board of Ophthalmology, Dr. Leonard Christensen, for a 4-year term beginning January 1962.

American Board of Otolaryngology, Dr. Francis E. LeJeune and George F. Reed.

American College of Surgeons, Board of Governors, for the term ending in 1962, Dr. Howard House, Dr. George Sisson, Dr. LeRoy Schall; for the term ending in 1965, nomination deferred pending examination of the American College of Surgeons official roster.

American Committee on Optics and Visual Physiology, Dr. Robert L. Tour for a term of three years beginning January 1962.

American Orthoptic Council, Dr. Marshall Parks for a term of three years beginning January 1962.

American Standards Association, Acoustical Standards Board, Dr. Edmund P. Fowler, Jr.

American Standards Association, Committee for Standardization of Ophthalmic Lenses, Dr. Carl J. Rudolph and Dr. Arthur C. Linksz.

Institute for Advancement of Medical Communications, Council on Medical Television, Dr. William L. Benedict.

International Organization Against Trachoma, Dr. Phillips Thygeson.

Medico, Inc., Dr. William L. Benedict.

National Committee on Research in Ophthalmology and Blindness, Dr. Bernard Becker and Dr. A. Edward Maumenee.

National Congress of Parents and Teachers, Dr. Frank D. Costenbader.

National Society for Crippled Children and Adults, Inc., Dr. Dean M. Lierle.

National Society for Medical Research, Dr. William L. Benedict.

Mr. President, I move the acceptance of these recommendations.

The motion was seconded and carried.

DR. HANSEN: The Council recommends that the Academy contribute 50 copies of the Atlas of Otolaryngic Pathology to the Registry of Otolaryngic Pathology of the Armed Forces Institute of Pathology to further the educational program of the Registry.

Mr. President, I move the acceptance of this recommendation.

The motion was seconded and carried.

DR. HANSEN: The Council recommends the nomination of Dr. William L. Benedict as Editor-in-Chief of the TRANSACTIONS.

Mr. President, I move approval of this recommendation.

The motion was seconded by Dr. Francis Lederer and carried.

DR. HANSEN: The Council nominates for Associate Fellowship:

A. Bruce Graham, Detroit, Michigan, Audiologist, Henry Ford Hospital.

Enrique Kronheim Rabinovitz, Mexico City, D. F., Bacteriologist.

Philip E. Rosenberg, Philadelphia, Audiologist.

Mr. President, I move that we accept the nominations of the Council.

The motion was seconded by Dr. Roper and carried.

DR. HANSEN: The Council nominates for Active Fellowship, 189 candidates who have completed all the requirements for membership, and whose names have been published in the TRANSACTIONS.

Mr. President, I move that we accept the nominations of the Council.

The motion was seconded by Dr. Maynard Wheeler and carried.

NEWLY ELECTED FELLOWS OF THE ACADEMY

Aimi, Kenji, 767 Shinohara-Machi Kohoku-Ku, Yokohama, Japan, ALR

Aldous, Harold E., 2000 S. Ninth East, Salt Lake City 5, Utah, OP

Alley, Jesse Clyde, Jr., 608 Medical Arts Bldg., Nashville 12, Tenn., ALR

Amiel, Felix V., 5343 Tallman Ave., Seattle 7, Wash., ALR

Balian, John Vahan, U.S. Army Hospital, Fort Campbell, Ky., OP

Balistocky, Marvin Harold, 1018 DeKalb St., Norristown, Pa., OP

Balshi, Stephen F., 1509 Easton Ave., Bethlehem, Pa., ALR

Balstad, Paul D., 1666 Elmira, Aurora 8, Colo., OP

Beyer, Brooke Anthony, 8218 Wisconsin Ave., Bethesda 14, Md., ALR

Biggs, Robert D., 670 W. Market St., Lima, Ohio, OP

Birck, Herbert Georg, 700 Bryden Rd., Columbus 15, Ohio, ALR

Bolognesi, Anthony Van Bergen, 325 Park Ave., Huntington, N. Y., ALR

Boniuk, Milton, Baylor University School of Medicine, Houston, Texas, OP

Brennan, James Edward, 405 Cooper St., Camden 2, N. J., ALR

Brownell, Morton Emmons, Jr., 728 Columbus St., Rapid City, S. D., ALR

Brunemeier, Faylon Minch, 2020 Court St., Redding, Calif., OP

Butler, Gerald Edward, 326 N. Ingalls, Ann Arbor, Mich., ALR

Butler, Richard Graham, 2021 Monroe, Dearborn, Mich., OP

Cain, Alvin Lafayette, USPHS Hospital, Box 3145, Seattle 14, Wash., ALR

Cather, Carl Henry, Jr., 417 Spruce St., Morgantown, W. Va., ALR

Cation, Vivian A., 5945 Dempster, Morton Grove, Ill., OP

Catlin, Francis Irving, Johns Hopkins Hospital, Baltimore 5, Md., ALR

Cavallaro, Joseph William, Holzer Hospital, Gallipolis, Ohio, ALR

Chiong, Armando Tantoco, Johns Hopkins Hospital, Baltimore 5, Md., ALR

Chu, Roberto, Clinica San Fernando, Panama, R. P., ALR

Churchill, Bernard Phair, 1729 S. 11th St., Milwaukee 4, Wis., ALR

Cleveland, Edwin Irving, 130 Pondfield Rd., Bronxville 8, N. Y., ALR

Cohen, Howard David, 1003 Delaware Ave., Wilmington 6, Del., ALR

Collins, Elmer Clare, U. S. Naval Hospital, Portsmouth, N. H., OP

Cooper, Frank Benton, 826 W. Henderson St., Salisbury, N. C., OP

Cox, Robert H., 8126 Panola St., New Orleans, La., ALR

Cross, Albion B., Jr., 1260 Main St., Baton Rouge, La., OP

Delgado, Robert E., 2100 N. Orange Ave., Orlando, Fla., OP

De Pinies, Felix, 1105 Park Ave., New York 28, N. Y., ALR

Derrick, Cornelius Frederick, 3677 Fort St., Lincoln Park, Mich., ALR

Ehlers, Charles William III, 1300 Bancroft Ave., San Leandro, Calif., OP

Eigner, Edwin Harvey, 10900 Carnegie Ave., Cleveland 6, Ohio, OP

Ellman, Donald, 1554 Northern Blvd., Manhasset, N. Y., OP

Evans, Frederick Harris, 2140 N. Capitol Ave., Indianapolis 2, Ind., ALR

Everton, Marta Ve, 117 E. Colorado Blvd., Pasadena 1, Calif., OP

Fish, George H., U. S. Naval Hospital 926, FPO San Francisco, Calif., ALR

Fitzgerald, George Thomas, 10400 S. Western Ave., Chicago 43, Ill., OP

Foster, Ray Dewey, 1944 N. Capitol Ave., Indianapolis 2, Ind., ALR

Frank, Robert L., 514 Cooper St., Camden 2, N. J., OP

Freeman, Gordon Redfern, 2001 Fourth Ave., San Diego 1, Calif., ALR

Freese, Carl Gates, 328 Washington St., Wellesley Hills 81, Mass., OP

Gehrich, Guenter Heinz, 1101 Maine St., Quincy, Ill., ALR

Gilbert Leonard James, 1740 Marco Polo Way, Burlingame, Calif., ALR

Gillette, David R., 7222 Owensmouth Ave., Canoga Park, Calif., OP

Goble, Elise Joan Hollenberg, 1 Baywood Ave., San Mateo, Calif., OP

Goble, John Lewis, 1 Baywood Ave., San Mateo, Calif., OP

Goldstein, Edward S., 1451 N.E. Bayshore Dr., Miami 32, Fla., OP

Gotlib, Bernard N., 132 Forest Ave., Bangor, Maine, ALR

Grom, Edward, Instituto Medico del Este, Ave. Casanova, Caracas, Venezuela, OP

Guardiola, Pablo, De Diego St. 102, Mayaguez, Puerto Rico, ALR

Hagler, William S., Emory University Clinic, Atlanta 22, Ga., OP

Haisten, M. Wyatt, Doctors Bldg., 3155 Stagg Dr., Beaumont, Texas, OP

Hand, Robert Frederick, Canadian Forces Hospital, Halifax, N. S., Canada, OALR

Harrison, Raymond, 140 E. 54th St., New York 22, N. Y., OP

Hart, George Ralston, U. S. Naval Hospital, Newport, R. I., ALR

Heare, Charles Robinson, 390 Tenth St., Beaumont, Texas, ALR

Hendershot, Edward Lawrence, 15644 Madison Ave., Cleveland 7, Ohio, ALR

Heydt, Ernest H., Jr., 216 Summit Ave., Jenkintown, Pa., OP

Hilding, David Anderson, Yale Medical School, Dept. Otolaryngology, New Haven, Conn., ALR

Hilgermann, George O., 90 S. Seventh St., Minneapolis 2, Minn., OP

Hohmann, Albert, 444 Lowry Medical Arts Bldg., St. Paul 2, Minn., ALR

Holding, Bruce F., Jr., EENT Service, Martin Army Hospital, Fort Benning, Ga., ALR

Holland, Ernst J., 2018 W. North Ave., Chicago 47, Ill., OP

Hollister, John Frazier, 2720 Capitol Ave., Sacramento 16, Calif., OP

Hoover, Richard Edwin, 14 W. Mt. Vernon Place, Baltimore 1, Md., OP

Howard, William James, 389 Linwood Ave., Buffalo 9, N. Y., OP

Hughes, Calvin Thomas, Jr., 576 Farmington Ave., Hartford 5, Conn., OP

Hull, Jess Stevens, Martin Army Hospital, Fort Benning, Ga., OP

Hurst, Alfred Lionel, 98 Adams St., Milton 87, Mass., ALR

Ignatius, Haig, 215 Needham Ave., Modesto, Calif., ALR

Ippolito, Carlo Amedeo, 165 North Village Ave., Rockville Centre, N. Y., ALR

Isbey, Edward Kenneth, Jr., 409 Flat Iron Bldg., Asheville, N. C., OP

Jako, Geza Julius, 243 Charles St., Boston 14, Mass., ALR

Jesberg, David Olsen, 220 Meridian Rd., San Jose 26, Calif., OP

Johnstone, William Wandell, East African Institute for Medical Research, Mwanza, Tanganyika, East Africa, OP

Jones, Courtland S., Jr., 384 Cleveland Dr., Buffalo 15, N. Y., ALR

Josey, John Speir, 1293 Peachtree St., N. E., Atlanta 9, Ga., OP

Karam, Farid, American University Hospital, Beirut, Lebanon, ALR

Katz, Eli, 4491 Sherbrooke West, Westmount, Que., Canada, ALR

Kelly, John J., 706 D St., San Rafael, Calif., OP

Kim, Ipbi, 44426 N. Tenth St. W., Lancaster, Calif., ALR

King, Hueston Clark, U. S. Army Hospital, West Point, N. Y., ALR

Kirchick, Julian, 230 Hilton Ave., Hempstead, N. Y., ALR

Kobs, Robert J., 608 W. Michigan Ave., Jackson, Mich., OP

Koch, John Clinton, 1306 Frank Ave., Lufkin, Texas, OP

Kramer, Bernard M., 384 Post St., San Francisco 8, Calif., ALR

Krupski, John Galahad, 125 W. 21st St., Lorain, Ohio, OP

Landis, Charles Byron, 2211 South St., Lafayette, Ind., OP

Larson, Darell Harvey, 714 Ivy, Moses Lake, Wash., OP

LaVelle, Herman Glen, Jr., Suite 526A, 899 Madison Ave., Memphis 3, Tenn., ALR

Leakos, James, 556 Medical Arts Bldg., Saskatoon, Sask., Canada, ALR

Leaman, John Creamer, 111 E. 65th St., New York 21, N. Y., OP

Lepley, Frederick John, USAF Hospital, March AFB, Calif., OP

Lewis, Earl L., 502 Torrance Blvd., Redondo Beach, Calif., OP

Lingeman, Byron Spencer, 328 Washington St., Wellesley Hills 81, Mass., OP

Link, Melvin Robert, Doctor's Bldg., Charlotte 7, N. C., ALR

Lozano-Elizondo, David, Zacatecas 229-425, Mexico City, D. F. 7, Mexico, OP

Luethy, Volker W. A., Hampton Roads Medical Center, 316 Main St., Newport News, Va., ALR

Lussier, Marcel, 310A est, Blvd. St. Joseph, Montreal, Que., Canada, OP

Mahoney, Jack L., 969 Pacific St., Monterey, Calif., ALR

Mann, William H., 4 Southwick St., St. Thomas, Ont., Canada, OALR

Martinez-Roig, Hugo E., 730 Ponce de Leon, Hato Rey, Puerto Rico, OP

Mayer, H. Richard, 302 S. Main St., Hightstown, N. J., OP

McGlynn, Lynn Douglas, 624 N. A St., Springfield, Ore., OP

McKenna, Ernest LaPlace, Jr., 5101 Township Line, Drexel Hill, Pa., ALR

Milner, E. L., 623 Woodlane, Little Rock, Ark., ALR

Mirikitani, Carl Mamoru, 130 N. La Cienaga Blvd., Los Angeles 48, Calif., ALR

Mitchell, Douglas Grant, 50 Church St., St. Catharines, Ont., Canada, OP

Murray, James Eldon, 1300 Bancroft, San Leandro, Calif., ALR

Nalle, Ernest, Jr., West Texas Clinic, 1312 Main, Lubbock, Texas, ALR

Nedell, Ralph Sydney, 1102 53rd St., Brooklyn 19, N. Y., ALR

Norman, Mark Lewis, 406 Medical Arts Bldg., Minneapolis 2, Minn., OP

Ottum, John Andrew, 400 Northern Bldg., Green Bay, Wis., OP

Papazian, Vartan, 144 Waterman St., Providence 6, R. I., ALR

Perraut, Louis Edward, 1712 Rhode Island Ave N.W., Washington 6, D. C., OP

Platt, George Alfred, 1351 Mt. Hope Ave., Rochester 20, N. Y., OP

Prenatt, George J., 993 Delaware Ave., Buffalo 9, N. Y., ALR

Pyper, John Edwin, 236 Ontario St., Stratford, Ont., Canada, OP

Quevedo, Julio, 15 Calle 6-59, Guatemala City 1, Guatemala, ALR

Quinn, Francis Berchmans, 15225 Vanowen St., Van Nuys, Calif., ALR

Rath, William F., Professional Bldg., Augustine Cut-Off, Wilmington 3, Del., OP

Reboton, Jose R., Madridejos, Cebu, Philippines, OP

Ritter, Frank Nicholas, University Hospital, Ann Arbor, Mich., ALR

Ross, John A. T., 384 Post St., San Francisco 8, Calif., ALR

Roth, F. Dale, 490 Post St., San Francisco 2, Calif., OP

Russman, Burton Alan, 30 N. Michigan Ave., Chicago 2, Ill., OP

Sabates, Felix N., Massachusetts Eye & Ear Infirmary, 243 Charles St., Boston 14, Mass., OP

Safir, Aran, Albert Einstein College of Medicine, New York 61, N. Y., OP

St. Dizier, Roger Volsy, Jr., 314 W. St. Mary Blvd., Lafayette, La., OP

Sardi, Carl Anthony, 1100 Olive St., Greensboro, N. C., ALR

Scaramella, Louis F., 7958 S. Western Ave., Chicago 20, Ill., ALR

Schlosser, Woodrow D., 3701 N. Broad St., Philadelphia 40, Pa., ALR

Schultz, Don Louis, Naval School of Aviation Medicine, Pensacola, Fla., OP

Schwartz, John Theodore, Naval Base Dispensary, Norfolk, Va., OP

Schwilk, Norman Frederick, Jr., 109 B St., APO 845 New York, N. Y., OP

Sears, Marvin Lloyd, Wilmer Institute, Baltimore 5, Md., OP

Sebastian, Eugene Francis, 921 N. Second St., Harrisburg, Pa., OP

Seftel, Daniel M., 526 Soquel Ave., Santa Cruz, Calif., ALR

Seidel, Jerry Glenn, University of Chicago Clinics, 950 E. 59th St., Chicago 37, Ill., OP

Shea, Michael, 170 St. George St., Toronto 5, Ont., Canada, OP

Sheets, John Howard, 1173 E. 42nd St., Odessa, Texas, OP

Sherman, Harry, 1465 President St., Brooklyn 13, N. Y., OP

Shore, Sydney, 60 Charlesgate West, Boston 15, Mass., ALR

Sidrys, Rimvydas, Medical Arts Bldg., Westgate Plaza, Streator, Ill., OP

Slatin, Louis, 132 S. Water, Decatur 12, Ill., OP

Slomka, Edwin B., Hunterdon Medical Center, Flemington, N. J., OP

Smathers, Charles Ralph, 1842 King St., Jacksonville 4, Fla., ALR

Smith, Joe Robert, Professional Bldg., Columbia, Mo., OP

Spurney, Robert V., U. S. Naval Hospital, Key West, Fla., OP

Statten, Page, 200 St. Clair Ave. West, Toronto 7, Ont., Canada, ALR

Steed, William Alexander, 1122 Druid Park Ave., Augusta, Ga., ALR

Stivrins, Kazimirs, 3145 O St., Lincoln, Neb., OP

Story, Stratton R., Womack Army Hospital, Fort Bragg, N. C., ALR

Sundmaker, Wilfried K. H., 202 S. 43rd St., Philadelphia 4, Pa., ALR

Swartz, Gerald, 13 S. Cayuga Rd., Buffalo 21, N. Y., OP

Szecsey, George, 101 Lafayette Ave., 1AB, Brooklyn 17, N. Y., ALR

Taggart, George Webster, Traders Bank Bldg., Hazleton, Pa., OP

Thiele, Arthur J., Jr., USAF Hospital, Andrews AFB, Washington 25, D. C., ALR

Thompson, George Alfred, 200 St. Clair Ave. West, Toronto 7, Ont., Canada, OP

Thurmond, Jack Alfred, 1021 Doctors Bldg., Charlotte 7, N. C., OP

Tinterov, Ludmil Assenov, Veterans Administration Hospital, East Orange, N. J., ALR

Updegraff, Ambrose Gavitt, 643 Sixth Ave. South, St. Petersburg, Fla., OP

Van Sandt, Jean Faint, Weber Clinic, 600 E. Main St., Olney, Ill., OP

Voorhees, Richard Leo, 1400 Foothill Dr., Salt Lake City 8, Utah, ALR

Wacha, Victor J., Jr., 3741 Stocker St., Los Angeles 8, Calif., ALR

Wahl, Milton Sol, Suite A-15, Professional Bldg., Augustine Cut-Off, Wilmington 3, Del., ALR

Waters, Raymond Oliver, Box 2275, Brooks AFB, Texas, ALR

Watson, James Edwin, 18524 Grand River, Detroit 23, Mich., OP

Watt, Russell Hyde, 309 E. Church St., Marshalltown, Iowa, OP

Weaver, Morley A., 88 Wentworth St., Hamilton, Ont., Canada, OP

Webb, Blair M., Naval Hospital NNMC, Bethesda 14, Md., ALR

Webb, Robert B., Jr., 116 S. Sycamore St., Petersburg, Va., OP

Weisman, Frederick L., 8349 Reseda Blvd., Northridge, Calif., OP

Wellman, Paul K., 614 Fincastle Bldg., Louisville 2, Ky., OP

Wiggs, Eugene Overbey, U. S. Naval Hospital, St. Albans, N. Y., OP

Wilson, W. Webb, Jackson Clinic, Jackson, Tenn., OP

Wing, Morgan Eugene, USAF Hospital, Sheppard AFB, Texas, ALR

Witt, John Edgar, 2012 17th St., Bakersfield, Calif., OP

Witzel, Samuel Hislop, 111 Simcoe St. South, Oshawa, Ont., Canada, OP

Wood, James Kenneth, 2505 Morrow, Waco, Texas, ALR

Woodward, James M., Jr., Box 2495, USAF Hospital, Andrews AFB, Washington 25, D. C., OP

Worlton, James Timbrell, 616 S. Tejon St., Colorado Springs, Colo., OP

Yurich, Eugene Leroy, 18101 E. Warren Ave., Detroit 24, Mich., ALR

Zagraniski, Raymond J., 1441 Chapel St., New Haven, Conn., OP

DR. HANSEN: The Council nominates the following officers for the year 1962:

President: Dr. Lawrence R. Boies, Minneapolis

President-Elect: Dr. A. D. Ruedemann, Detroit

First Vice-President: Dr. Wendell L. Hughes, Hempstead, L. I., New York

Second Vice-President: Dr. John R. Lindsay, Chicago

Third Vice-President: Dr. Hermann Burian, Iowa City

Councillor: Dr. Francis Lederer, Chicago

Executive Secretary-Treasurer: Dr. William L. Benedict, Rochester, Minnesota

Secretary for Ophthalmology: Dr. Kenneth L. Roper, Chicago

Secretary for Otolaryngology: Dr. Clair M. Kos, Iowa City

Secretary for Instruction in Ophthalmology: Dr. Glen G. Gibson, Philadelphia

Secretary for Instruction in Otolaryngology and Maxillofacial Surgery: Dr. Eugene L. Derlacki, Chicago

Secretary for Home Study Courses: Dr. Dean M. Lierle, Iowa City

Mr. President, I move the acceptance of these nominations.

DR. PISCHEL: Are there any further nominations? Do I have a second?

The motion was seconded by Dr. Daniel Snydacker and carried.

DR. HANSEN: The Council has designated the time and place of the next scientific session of the Academy as November 4 to 9, 1962, Las Vegas, Nevada.

Mr. President, I move the acceptance of this report as a whole.

DR. EVERETT GOAR: Mr. President, I request the privilege of discussing the last item in the report. Are all those present members of the Academy?

DR. PISCHEL: Will all persons not members of the Academy leave the room?

DR. GOAR: I have no objection to any member of the Academy going to Las Vegas, but I am concerned about the Academy holding its meeting in a place noted for its gambling. I am concerned because for fifty years or more the Academy has stood as an example to other medical organizations. This is a mistake in my opinion and I hope the Council will reconsider. We are playing into the hands of those people who are working day and night for socialized medicine.

DR. RALPH RYCHENER: Mr. President, I feel that this Academy is faced with the same decision which the A.M.A. faced last June, but one of our members of the House of Delegates told the House exactly what Dr. Goar told you. We in Tennessee realize how close we are to losing to socialized medicine. Our two members who voted for the Forand Bill are now in the saddle and are determined to ram socialized medicine down our throats. I feel this decision of the Academy Council is very bad for medicine as a whole and I move that this portion of the report be tabled.

DR. SHIRLEY BARON: The Pacific Coast Oto-Ophthalmological Society, which is the largest society on the West Coast, met in Las Vegas in 1959. We made a count on the attendance at our scientific sessions and our instruction courses, and it was as great as it had been at any other place. The assembly hall will hold 7,000 people, and there are more than enough smaller rooms to hold all of our instruction courses. You don't have to stand in a long waiting line if you want a sandwich.

DR. DAVID HARRINGTON: Those of us who live on the West Coast don't have any great love for Las Vegas. I have heard a lot of repercussions about the Pacific Coast meeting. It would be an even greater mistake for the Academy. In the past week I have conducted a private poll here. The consensus is strongly against Las Vegas and the reasons quoted have been expressed here already more adequately than I can state them at this time.

DR. HARRY KOLSON: I am sure that the members of the Academy Council spent a lot of time discussing this. I would like to hear from them the factors which led them to make this decision.

DR. PISCHEL: Briefly they included cheaper rates, better hotel accommodations, eating facilities, larger exhibit area, larger assembly rooms.

DR. LAWRENCE R. BOIES: I was a guest speaker before the Pacific Coast Society when it met in Las Vegas in 1959, and I really had a delightful experience. I don't gamble, and this part did not bother me. I was convinced of the high caliber of the meeting. Since then they have completed the Convention Center, and everything—scientific sessions, instruction courses, exhibits—can be on one floor. As far as public relations go, there are even groups of church women meeting there and an increasing number of medical societies. I am not concerned about criticism. I am dubious whether our meeting there would have any effect on the fate of socialized medicine.

DR. HANSEN: I am speaking as a member of this body and not in the position which has been delegated to me today. For a number of years I had the questionable pleasure of being Secretary for Public Relations for the Academy and in that position I had to work with members of the press. When the Pacific Coast Society met in Las Vegas, the fact is

that nothing much was said in the press about the meeting. Such will not be the case for a meeting of the Academy. It will be completely covered not only by the wire services and news agencies, but by the medical news services and many news magazines. Since we are here discussing this thing man to man, I think that the public relations angle is the most important thing we have to worry about. I still have grave doubts about the wisdom of going to Las Vegas.

DR. CHARLES E. JAECKLE: In my community, I think that the reputation of medicine will be impaired. I believe my patients will wonder about their physician going to a place like Las Vegas for a medical meeting. I believe that the city fathers of Las Vegas would like for us to raise the reputation of Las Vegas.

DR. BENEDICT: We have been very much concerned over the past few years about the future of the Academy. The growth of the Academy as a medical organization depends a great deal on the value of our meetings to the members. We have held many discussions about how we could continue to conduct the affairs of the Academy in the Palmer House or in some other hotel where members could be housed and attend meetings under the same roof. When our registration was 4,000, this was easy, but today our registration is almost at 7,000.

We are now confronted with the necessity of finding room for the kind of program which we would like to continue.

For many years the Palmer House has suited our needs better than any other hotel in the country. A few years ago all the technical exhibits could be accommodated in the Exhibit Hall and the Red Lacquer Room was used for scientific exhibits, but for several years now we have had to use some of the meeting rooms on the Club Floor for our scientific exhibit because of the demand for exhibit space. This has cut down on the number of meeting rooms as well as rooms available for luncheon and dinner meetings. We have had to utilize more rooms on the Seventh Floor, and we have had to tailor our program to fit the facilities.

The Palmer House has done everything possible to supply our needs and the sales staff has been most helpful in suggesting greater use of facilities available. We are using the new combined Grand-State Ballroom for the first time this year. It accommodates 2,200 chairs. But in the middle of a session early this week they came and told me that the room was overcrowded.

You are all familiar with the crush of men waiting to register on Sunday morning. We have tried to alleviate this pressure by scheduling sessions on Sunday morning.

One of our biggest problems has been the instruction program. The capacity of the rooms on the Seventh Floor is limited. We have tried to meet this problem in several ways: by continually increasing the number of courses, by repeating courses that are in demand, and by advance registration which gives our own members priority. The greatest capacity of any room on the Seventh Floor is fifty, and most of the rooms cannot accommodate more than twenty-five or thirty people. Every year I have a number of letters from unhappy members who have sent in an advance order for courses which are important to them, only to find that the quota is already filled. As your Executive Secretary, I feel that it is my duty to make it possible for every Fellow of the Academy to profit from our meetings.

Since 1921, I have been a member of the intimate family of Academy secretaries, and since 1942, I have had the honor to serve you as Executive Secretary-Treasurer. It is my job to furnish facilities for our meetings.

In recent years I have been impressed by the increasing importance of mechanization in our specialties. Nearly thirty per cent of our instruction hours are devoted to techniques in use of equipment—audiometers, tonometers, and all the rest. I have felt that our Technical Exhibit plays a valuable role in this educational program. But in spite of repeated increases in our exhibit space, we still have a waiting list of exhibitors who cannot be accommodated. This is a matter of serious concern to your Program Committee.

What can we do? Where can we go? I would be remiss in my duties if I did not constantly survey the field for locations with facilities that might fulfill our requirements. I have data on hotels and auditorium space over the entire country. Today there is no hotel in the country which can serve us better than the Palmer House. We have had a long and a close association and we could not ask for better relations than we have had with the staff here. They have done everything possible for us. It would be a lot easier for me and for our staff to continue to hold our meetings here.

But I cannot sacrifice the future of the Academy. At the meeting of the Program Committee last January, this was up for serious consideration. Las Vegas had been suggested to us as a possibility, and on a trip to the West Coast I stopped there to look over their facilities. I was so impressed that I asked Academy Secretaries to hold their meeting there in June. I can assure you that they all went to Las Vegas with serious reservations. But after a tour of the Convention Center, not one could say that this building did not offer all that we required in meeting facilities and at a cost below that under which we have operated. In the Convention Center there is more than enough exhibit area for all our technical and scientific exhibits. There are twenty-six rooms available for instruction courses, twelve of which will hold more than two hundred people and two more with a capacity of a thousand. The auditorium itself is theater style with seating for 7,000. There is an amplification system and air conditioning throughout. Out of fairness to the Academy membership, we felt that we could only give it a try.

The Director of the Convention Center tells me that the Center is open only to organizations approved by the county. It is not in the city of Las Vegas. The hotels also are outside the city limits. They have facilities adequate to accommodate 15,000 people. Room rates are low. For comparable accommodations I would estimate that the rates are only about 60 per cent as high as those in Chicago.

We shall continue to look for other meeting places. New hotels are now being built in New York and on the West Coast which will have facilities to meet our needs. They may be ready by 1963.

If the Academy is to continue to grow, its program must grow with it. A static program is a dying one. I am only trying to make growth possible.

Dr. Pischel called for a vote. Since the voice vote was indecisive, a standing vote was requested The tally was 68 for Las Vegas and 54 against.

DR. RUDOLF AEBLI: Since the vote is so close I move that the matter be referred back to the Council for reconsideration.

DR. SHIRLEY BARON: Since the Council has already approved and recommended this action, the motion is out of order.

DR. LYLE M. SELLERS: I move that we accept the report as a whole.

The motion was seconded by Dr. Rychener.

DR. JAECKLE: I think we should hear the reports of committees. How do we know what commitments we are making for the Academy unless we know what was contained in these reports?

DR. BENEDICT: The Committee Reports have been reviewed and approved by the Activities Committee. They may be inspected in the Headquarters Office and they will be printed in the November-December 1961 issue of the TRANSACTIONS. Any requests for funds or for Council action have been considered and the action taken by the Council has appeared in report of the Senior Member.

A vote taken on the motion to accept the report as a whole carried.

DR. KOLSON: It is frightening to think what influence a small group such as this can wield in the affairs of a society with 7,000 members. I would like to suggest that the Business Meeting not be held at 5:30 in the afternoon, but at such a time when more members could be present.

DR. RYCHENER: I agree with Dr. Kolson. This has caused disaster in other groups. It happened in the Section on Abdominal Surgery of the A.M.A. in 1959.

DR. PERLMAN: What constitutes a quorum?

DR. PISCHEL: It is not stated in the Constitution or By-laws. Those who attend the Business Meeting make up the voting body.

Is there any new business to come before the meeting?

DR. BENEDICT: There is nothing at this desk.

DR. PISCHEL: As a final item of business, I wish to introduce to you your new President, Dr. Lawrence R. Boies.

Dr. Boies was escorted to the rostrum.

DR. BOIES: I thank you for this high honor. I think this is the largest specialty society in the world. I have heard my former chief say that there were many armchair societies, but that this was a society which gets things done.

DR. PISCHEL: Thank you, Dr. Boies. I wish to thank everyone who has helped make this meeting an outstanding one. Do I hear a motion for adjournment?

The meeting adjourned at 6:25 p.m.

COMMITTEE REPORTS

Upon recommendation by the Activities Committee, the Council voted acceptance of the following reports of the standing and joint committees:

REPORT OF THE COMMITTEE ON AUDIO-VISUAL EDUCATION

DEAN M. LIERLE, Chairman

The Committee on Audio-Visual Education has been inactive this year. This past year we sold five prints of the film Embryology of the Eye, bringing the total number of sales to 83.

There were no prints of the film Embryology of the Ear sold during 1961. The total number of sales of this film remains at 22.

REPORT ON THE COMMITTEE ON CONSERVATION OF HEARING

DEAN M. LIERLE, Chairman

The Executive Committee on Conservation of Hearing of the American Academy of Ophthalmology and Otolaryngology held a meeting at the Palmer House in Chicago, December 11, 1960. All members were present except Doctors Canfield, Goodhill, McHugh and Rosenblith. Dr. W. L. Benedict, Secretary-Treasurer of the American Academy of Ophthalmology and Otolaryngology, was also present.

Dr. Aram Glorig and Dr. Juergen Tonndorf have been made Fellows of the Acoustical Society of America, which has a restricted class of membership. This recognition represents a special achievement.

Dr. George Shambaugh submitted his resignation because of his new post as Editor of the Archives, which has compelled him to give up some of his many activities.

Dr. House and Dr. Glorig were appointed to work with the Committee on Hearing in Adults regarding the problem of automobile insurance for the deaf.

An exhibit was presented by the Committee on Exhibits at the last Academy meeting. Publications of the Committee and Subcomittees along with certain pertinent information of individual members were displayed. It was recommended that another exhibit be given using automatic audiometers and displaying information regarding testing booths.

Eight of the ten chapters for the "Manual on Audiometry" have been completed. It is expected that the manual will be ready to distribute to each member before the next meeting.

It was suggested that the Liaison Committee of the American Speech and Hearing Society and the Committee on Conservation of Hearing be reactivated and that the following problems be presented for discussion:

1. The present relationship existing between the otologist and persons who call themselves audiologists although not adequately trained in the audiological field (the hearing-aid salesman, the person in industry who has taken a two-day course in audiometric testing, and the individual primarily trained for speech work).

2. The respective responsibilities of the otologist and the audiologist to the patient.

3. The problem of training audiometric technicians for industrial programs as well as school programs.

The Subcommittee on Hearing in Children is still mainly concerned with the study of hearing being conducted at the University of Pittsburgh, and one dealing with hearing in infants being conducted at the Johns Hopkins University. The major effort to date has been the conduct of the study in Pittsburgh, which has produced preliminary results of recognized significance and promises additional findings of fundamental importance. Three publications have arisen from the study in Pittsburgh. Additional studies are being planned to bring together a body of information on hearing in children which is basic to the prevention of hearing impairment and the conservation of hearing in children. A mailing list has been compiled of professional workers, encompassing otologists, otolaryngologists, audiologists, speech and hearing therapists, and others. This list is being used in strategic dissemination of the research study results by the Subcommittee on Hearing in Children as various studies progress.

The study dealing with hearing in infants being conducted at the Johns Hopkins University has produced the development of screen-

ing methods-techniques for testing of the auditory response of newborn infants and a satisfactory screening test for young infants under 7 months of age. Future plans are (1) to continue the present screening activities at 4 months and 12 months on Cerebral Palsy Study patients, (2) to continue more definitive studies on a limited number of children, and (3) to develop screening devices for both language and hearing to be used for all Collaborative Project children at the age of 36 months.

The Noise Committee had difficulties during the past year because the financial support from the insurance companies had been discontinued and the Research Center had to find a new location. However, a substantial sum of money was obtained elsewhere for the support of the committee and the new location proved to be very satisfactory. Affiliation with the University of Southern California has proved to be ideal, as this permits the use of the services of the students.

The following projects are in progress:

1. Causes of Unreliability of Pure Tone Audiometry
2. Evaluation of Bone Conduction Phone Calibrators
3. Temporary Threshold Shift Produced by Acoustic Pulses
4. Time Intensity Analyzer and Noise Induced Hypacusis
5. Steady Noise, Gunfire and High Frequency Hearing Loss
6. Relations of Hearing Loss to Noise Exposure
7. Noise-Induced Temporary and Permanent Threshold Shift

About 20,000 copies of the manual on the proceedings of the Working Conference of the Health Aspects of Hearing Conservation of the U. S. Department of Health, Education and Welfare, which was published by the Academy, have been distributed to public health agencies in different parts of the world to try to stimulate conservation of hearing.

Dr. Walter Alexander of Winnipeg, Canada; Dr. Percy Ireland of Toronto, Canada, and Dr. William Baughn, were appointed as liaison members on the Subcommittee on Noise.

The Subcommittee on Hearing in Adults held a meeting at the Palmer House on September 25. The principal item of business was to complete the application for research funds for the study of hearing loss, comparable in some respects to the one being made on children, which was to be sent to the National Institute of Health prior to November 1. This work is to be carried out in conjunction with the services of the Research Center in Los Angeles. The principal significance of this study is to establish the effects of various disease processes on the auditory system.

The manual which was prepared by the Subcommittee on Hearing in Adults has been published and copies sent to the members of the Committee.

A meeting of the Subcommittee on Audiometers was held in Miami, Florida, at the time of the meetings of the senior societies. It was reported that the manufacturers agreed to pay $400 minimum when the request for listing an audiometer was made and to pay any further costs which may be entailed on a cost-plus basis. The Subcommittee reiterated its previous position that it would be unwise to design, or have a manufacturer design, "a seal of acceptance." The manufacturer would be permitted to put in his advertising in the TRANSACTIONS of the Academy and in other journals, the fact that the audiometer was listed as meeting the minimum requirements of the American Standards Association.

A second meeting was held in Chicago on October 11, 1960. The Subcommittee reaffirmed its original resolutions (1) that no audiometers which are not listed could be advertised in the TRANSACTIONS of the Academy or appear in its exhibits for more than one year; (2) that the manufacturer should be apprised as soon as possible of the fact that his audiometer had passed the Referee Laboratory's tests showing that an instrument conformed to the minimum ASA standards, and (3) that in case an instrument did not come up to the standards on the first testing, the manufacturer would be able to confer with the Referee Laboratory and an effort be made to ascertain the difficulty.

The Academy made an allowance of $20,000 to the Committee on Conservation of Hearing. Of this sum $7,500 was allocated to the expense of the Parent Committee, $7,500 to the Subcommittee on Noise, and $5,000 to the Subcommittee on Hearing in Children.

A successful meeting of the Junior Research Group was held in October on the Saturday previous to the Academy. There was a high standard of papers and the large audience was an indication of the widespread in-

terest. It was recommended that the present policy of the Academy regarding publication of otolaryngology research award essays, namely that the award recipient be permitted to publish the essay in the journal of his choice, be continued. However, the subcommittee advised that the Editorial Board of the TRANSACTIONS of the American Academy of Ophthalmology and Otolaryngology be asked to publish an abstract of not more than two hundred words of each award-winning essay.

The Deafness Research Foundation has become keenly interested in a campaign to educate the public to the idea of setting up temporal bone banks. Furthermore it is probable that the Deafness Foundation may make available for a pilot study, an amount of money annually for three years to set up a Bone Bank Center for the collection and distribution of the bones to the laboratories approved for microscopic section. Preliminary study has shown that such a center should be run on a twenty-four-hour-a-day basis and for that reason it should be set up in conjunction with a clinical department of otolaryngology in a teaching hospital. Suitable legal forms to be signed by the donor and his next of kin are being prepared. These forms will be distributed from a Bone Collection Center. A three year pilot study at the Bone Collection Center will be set up on a temporary basis by the Department of Otolaryngology at the University of Chicago and a *modus operandi* will be developed for consideration of the subcommittee. The possibility that a long-term grant might be made by one of the National Institutes of Health to the Subcommittee on Research to carry on a center at an appropriate place and to set up a repository for the sets of temporal bone sections will be explored if the pilot study proves to be a success.

The Committee appreciates very much the appropriation made by the Council of the American Academy of Ophthalmology and Otolaryngology in support of the work of the Committee on the Conservation of Hearing, and we respectfully request the same amount of $20,000.

REPORT OF THE COMMITTEE ON EYE BANKS

R. TOWNLEY PATON, Chairman

The Committee was formally established under the Academy at the October meeting, 1960. The members of the previous Joint Committee on Eye Banks, now disbanded, were appointed by the Academy. The membership is as follows: A. E. Braley, M.D.; F. Phinizy Calhoun, M.D.; Ramon Castroviejo, M.D.; Michael J. Hogan, M.D.; Alfred E. Maumenee, M.D., and A. D. Ruedemann, Sr., M.D.: R. Townley Paton, M.D., was appointed Chairman and J. Harry King, Jr., M.D., Secretary.

A meeting was held on Tuesday, May 30, 1961, at which time it was decided that an eye bank booklet should be published to standardize all eye bank procedures, including enucleation. It was recommended that it be an official publication of the Academy and that the authors should be Doctors Braley, Castroviejo and Paton.

The "Code of Ethics" for eye banks, previously approved by the Committee, was printed and distributed to eye banks during the year.

An *open meeting* of medical and lay eye bank directors was held on June 29, 1961, in conjunction with the Committee meeting, at the Plaza Hotel, New York City. This was a highly successful meeting with twenty-five eye banks from all areas of the country represented. The proceedings of the meeting were briefly as follows:

The Secretary outlined the background of the Committee, its organization and purpose. A printed list of known active eye banks was distributed. The Chairman discussed the medical problems of eye banks, the "Code of Ethics," ethical problems, need for better donor laws, probable publication of an eye bank booklet by the Academy, and the need for a motion picture depicting enucleation technique and eye bank procedures.

Doctor Ruedemann explained the American Association of Affiliated Eye Banks, which will be organized in October 1961. There was an enthusiastic response to this suggestion, and Doctors Ruedemann and Braley were appointed to organize the Association under the guidance of the Academy.

Doctor Braley volunteered to organize a clearing agency for donor eyes in the midwest and to formulate plans for its use elsewhere, to conserve and properly use donated eyes.

Doctor Castroviejo answered questions from the floor, and after much discussion the Committee concluded that the question of responsibility for the sterility and condition of the donor eye lay with the surgeon accepting and using the tissue, and not with the eye bank furnishing the eye.

Doctor Charles E. Iliff announced the organization of the International Eye Bank, sponsored by MEDICO. He outlined its purpose, organization, function and future plans. He thanked the eye banks for their generous support and emphasized that only surplus eyes, not required in this country at the time, were being sent to areas of the world where needed.

Doctor King discussed the status of preserved eye tissues and noted that a new simplified method of preserving corneas for lamellar grafts had been developed and recently presented. The Washington Eye Bank (Lions 22-C) makes these tissues available to surgeons and eye banks requesting them when tissues are on hand.

A new cheap, lightweight shipping container for fresh eyes was demonstrated by Mr. J. J. Lawlor of the Washington Eye Bank.

Doctor Paton closed the meeting by noting the need for subcommittees to work on a national donor law, to consult with airlines regarding free shipment of eyes, and to standardize the donor card to be used nationally by all eye banks.

The next meeting of the Committee will be in Chicago in October 1961.

REPORT OF THE COMMITTEE ON IMPLANTS AND IMPLANT TECHNIQUES

A. D. Ruedemann, Chairman

The meeting of the Committee on Implants and Implant Techniques was called to order by the Chairman, Dr. A. D. Ruedemann. He suggested the name of the committee be changed to include all ocular prosthetic devices. The members agreed on the name "Committee on Prosthetic Devices."

Tenon's capsule, scleral and anterior chamber lens implants were discussed and the committee decided to investigate the indications for the use of implants, the types of material used, e. g., silicon and quartz coating, and the results received from the retention of such implants. Reports will be prepared for the next meeting.

The surgical procedures indicated for an ocular prosthesis — evisceration, enucleation and exenteration—were discussed. It was recommended that a report from each member be presented at the next meeting regarding the results of exenteration in relation to the prosthetic device.

An excellent conference was held which was both interesting and constructive.

REPORT OF THE COMMITTEE ON OPHTHALMIC PATHOLOGY

Michael J. Hogan, Chairman

Enclosed is the Annual Report of the Registry of Ophthalmic Pathology. Of interest is the acquisition of over 900 enucleated eyes from various contributors, almost two-thirds of which were contributed by civilian ophthalmologists or hospitals; also, the backlog of cases, which is almost one-third the number of cases contributed during the year. This backlog probably is due to (1) the large volume; (2) insufficient help; (3) the teaching load, which is large, considering the number of full-time fellows, and ancillary teaching at the Washington Hospital Center. Remedies for this problem are discussed later.

I. The Ophthalmic Pathology Atlas

Thanks to Dr. Lorenz Zimmerman, who has carried a large responsibility at the AFIP in addition to illustrating and writing in the Atlas, the final chapter was submitted to Saunders on July 15. Galley proof has been returned to Saunders on all chapters through X (of XIII). Page proof has been completed and returned to Saunders through Chapter V. It is expected the book will be marketed during October or November. It is suggested that the Academy give a copy of this book to each of the principal contributors and to a selected group of associates who have made the book possible. The Committee is pleased with the new Atlas and the contribution it will make toward teaching. Plans already are being made for the Third Edition, based on a new system of correlating pathologic material in various laboratories in this country.

An application has been submitted to the National Institute for Neurological Diseases and Blindness by the Academy to support a training grant at the Armed Forces Institute of Pathology. Essentially this grant will provide assistance to Dr. Zimmerman, technicians for processing specimens, visiting teachers at the AFIP, and support for one fellow. A meeting, sponsored by the Academy, was held at the Shoreham Hotel, March 19, 1961, with representatives of the NINDB to discuss the methods for implementing this application. Drs. Benedict, Hogan, and Zimmerman were present to represent the Academy.

11. Registry of Ophthalmic Pathology, 1960

One thousand six hundred and one (1601) specimens were contributed to the Registry of Ophthalmic Pathology during 1960. Of these, 909 were whole eyes (668 from civilian contributors). The other 692 cases were sectioned eyes and specimens from the conjunctiva, lids and orbit (415 from civilian contributors). There is now a total of 49,878 accessions in the Registry of Ophthalmic Pathology. On 31 December 1960 the Registry had a total backlog of 597 cases compared with 391 cases on 31 December 1959, an increase of 206 cases.

The Registry loan sets were borrowed by 163 individuals: 24 in the Armed Forces, 22 in the Veterans Administration, 8 in the Public Health Service, and 109 civilians.

TRAINING ACTIVITIES

Personnel in the Ophthalmic Pathology Branch of the Armed Forces Institute of Pathology are engaged in a variety of educational activities which include: (1) participation in formal courses, (2) participation in Clinicopathologic conferences and seminars, (3) presentation of special lectures, (4) on-the-job training of residents and fellows, (5) preparation of exhibits, and (6) preparation of microslide and lantern slide loan sets.

1. *Courses*

a. *AFIP's Annual Course in Ophthalmic Pathology:* A course in Ophthalmic Pathology was conducted at the Armed Forces Institute of Pathology March 28-April 1, 1960. The Faculty included: Dr. L. E. Zimmerman Course Director; Doctors Frederick C. Blodi, Milton Boniuk, Ben S. Fine, Elson B. Helwig, Frank B. Johnson, Sam T. Jones, A. Edward Maumenee, Benjamin Rones, Theodore E. Sanders and Arthur M. Silverstein, Miss E. V. Paul and Mr. L.P. Ambrogi. The enrollment included 84 physicians: 51 from the Armed Forces and other governmental institutions, 27 civilians and 6 foreign nationals.

b. *Washington Hospital Center's Lecture Course on Ophthalmology:* Drs. Zimmerman and Fine participated with lectures, in January, on the histology, embryology, and pathology of the lens and complications of cataracts.

c. *New Orleans Academy of Ophthalmology Course on Diseases and Surgery of the Lids, Conjunctiva, and Cornea:* Dr. Zimmerman participated with three lectures on Pathology of the lids, conjunctiva and cornea, February 8 to 12.

d. *Wilmer Institute Training Program:* Dr. Zimmerman presented a series of lectures and slide conferences on pathologic anatomy of the eye (periodically throughout the year).

e. *University of California Course in Advances in Surgical Anatomy of the Eye:* Dr. Fine participated as faculty member with lectures on the ultrastructure of the iris and vitreous, September 22 and 23.

f. *Dr. Georgiana D. Theobald's Course:* During the October meeting of the American Academy of Ophthalmology and Otolaryngology, Dr. Zimmerman participated as a faculty member in Dr. Theobald's annually repeated course in ocular pathology.

2. *Clinicopathologic Conferences and Seminars*

a. Dr. Zimmerman participated in the fifth (final) Glaucoma Conference sponsored by the Josiah Macy, Jr. Foundation, Princeton, New Jersey, March 6 to 8.

b. Dr. Zimmerman participated in the Fourteenth Annual Meeting of the Ophthalmic Pathology Club held at the AFIP, April 4 to 6.

c. Dr. Fine and Mr. Tousimis participated in the International Congress of Anatomists in New York City, April 11 to 13.

d. Dr. Zimmerman participated in the Conferences on Diabetic Retinopathy, sponsored by the National Institute of Neurological Diseases and Blindness, held at Cherry Hill Inn, Haddonfield, N. J., May 1 and 2.

e. Dr. Zimmerman participated in the International Conference on Sarcoidosis sponsored by the National Academy of Sciences and held in the Academy of Sciences Building, Washington, D. C., June 1 to 3.

f. Dr. Porterfield participated in a clinicopathologic conference on Retinoblastoma and Pseudogliomas, University of Missouri School of Medicine, Columbia, Missouri, November 10.

g. Drs. Rones and Zimmerman conducted a seminar on "Tumors of the Iris" before the Section on Ophthalmology, Baltimore County Medical Society, November 17.

h. Dr. Zimmerman participated in the A. P. Sloan Foundation's Conference on Toxoplasmosis held at the Kenwood Country Club, Bethesda, Maryland, November 21 and 22.

i. Ophthalmic Pathology Weekly Conferences with WRAMC and Bethesda Naval Medical Staffs, at the AFIP.

3. *Other Lectures*

a. Dr. Zimmerman was the guest speaker at the February meeting of the Colorado Ophthalmological Society. He lectured on "Pathology of Corneal Dystrophies" and on "Granulomatous Inflammations of the Eye," February 20.

b. Mr. Tousimis and Dr. Fine presented a paper on "Electron Microscopy of Monkey and Human Iris" at the meeting of the Washington Society for Electron Microscopy, March 25.

c. Dr. Zimmerman presented a paper on "Pathology of Closed Angle Glaucoma" at the Annual Meeting of the Wilmer Ophthalmological Institute, Johns Hopkins Hospital, April 7 to 9.

d. Dr. Fine and Mr. Tousimis presented a paper on "The Structure of the Vitreous Body and the Zonule of Zinn" at the Annual Meeting of the Alumni and Staff, Department of Ophthalmology, Washington Hospital Center, June 1 to 3.

e. Dr. Zimmerman lectured on "Epithelial Tumors of the Lacrimal Gland," "Melanocytomas of the Optic Nerve Head" and "Tumors of the Eyelids" at the LXXI Annual Convention of the Washington State Medical Association in Seattle, September 26 to 28.

f. Mr. Tousimis gave a seminar on "Ultrastructure of Cones and Rods; Recent Electrophysiological Experiments on Color Vision," George Washington University School of Medicine, November.

g. Dr. Boniuk presented a paper on "Necrosis of the Iris, Ciliary Body and Retina Following Retinal Detachment Operations with Circling Polyethylene Tubes" at the Massachusetts Eye & Ear Infirmary, Boston, December 16.

4. *On-the-Job-Training*

The following physicians received on-the-job-training and experience in ophthalmic pathology at the AFIP:

a. Dr. Ben S. Fine was awarded a second year of advanced training in ophthalmic pathology and research (NINDB Special Traineeship Award No. BT-502).

b. Dr. Milton Boniuk completed a year of fellowship training sponsored by the American Academy of Ophthalmology and Otolaryngology (June 30) and then began a second year under NIH sponsorship (NINDB Special Traineeship Award No. BT-701).

c. Dr. Harold I. Rodman completed a Postdoctoral Fellowship in ocular pathology and histochemistry (NINDB Award No. BF-10, 593).

d. Dr. Henry Starr began a year of training as a volunteer in ophthalmic pathology (July 1).

e. Dr. John F. Porterfield was awarded a Postdoctoral Fellowship (NINDB Award No. BF-12, 479) to study ophthalmic pathology at the AFIP (August 1).

f. Dr. Sylvia L. Welter was awarded a Special Traineeship (NINDB Award No. BT-768) to study ophthalmic pathology and immunology at the AFIP (October 1).

g. Dr. Gloria Lim, Instructor in Ophthalmology, College of Medicine, University of the Philippines, began a year of Fellowship Training sponsored by the American Academy of Ophthalmology and Otolaryngology (November 1).

h. Dr. George H. Kurz was awarded a Special Traineeship (NINDB Award No. BT-718) to study ophthalmic pathology at the AFIP (November 8).

i. Drs. M. C. Kwitko, S. Z. Elias, L. Kogan, D. Mousel, and C. Alexander began or completed training in ophthalmic pathology as part of their Washington Hospital Center Residency Training.

j. Mr. Richard Schulze (Johns Hopkins Senior Medical Student) spent his elective senior year quarter in the Ophthalmic Pathology Branch, November and December. (He plans an internship in Pathology and a residency in Ophthalmology.)

5. *Exhibit*

An exhibit on "Clinicopathologic Study of the Cornea" prepared at the AFIP by Drs. L. E. Zimmerman, W. F. Hughes, and S. T. Jones, received the Certificate of Merit at the Miami Beach Meeting of the American Medical Association, June 13 to 17.

6. *Study Sets*

a. Dr. M. Boniuk began work on a special study set covering pathology of the eyelids. This set will have as its objective the presentation by kodachrome slides and microslides (approximately 100 each) of the clinical and microscopic features of eyelid lesions of importance to pathologists.

b. Dr. Kurz began work on a similar set covering lesions of the conjunctiva.

7. *Certificate of Award*

At its annual meeting, the American Academy of Ophthalmology and Otolaryngology presented to Dr. Zimmerman its award "for distinguished services in the educational programs of this society conducted under the auspices of the Program Committee."

RESEARCH ACTIVITIES

1. *Clinicopathologic Studies*

a. Dr. R. Andersen continued his study of rare retinal neoplasms (diktyomas, medulloepitheliomas, etc.).

b. Drs. L. Apt and L. E. Zimmerman continued their clinicopathologic study of ocular melanomas in children.

c. Drs. John Porterfield and L. E. Zimmerman resumed the study of orbital rhabdomyosarcomas initiated and subsequently dropped by Drs. Foreman, Shuman and Zimmerman.

d. Drs. A. Forrest and L. E. Zimmerman continued their study of postirradiation neoplasms of the orbital area.

e. Drs. S. T. Jones and L. E. Zimmerman completed their clinicopathologic study of the corneal dystrophies.

f. Drs. T. R. McKenzie and L. E. Zimmerman continued their study of retinoblastoma.

g. Dr. T. E. Sanders completed his study of juvenile xanthogranulomas.

h. Drs. S. M. Wolff and L. E. Zimmerman continued their study of postcontusion open angle glaucoma.

i. Drs. L. E. Zimmerman and L. V. Garron continued their study of melanotic tumors of the optic disc.

j. Dr. L. E. Zimmerman and Miss E. V. Paul continued the long-term follow-up study of epibulbar and intraocular melanomas.

k. Drs. L. E. Zimmerman and H. Rappaport continued their long-term clinicopathologic study of lymphoid tumors and related lesions of the ocular and orbital tissues.

l. Dr. J. Porterfield initiated a study of all orbital tumors on file in the Registry of Ophthalmic Pathology.

m. Dr. M. Boniuk initiated a study of all eyelid tumors on file in the Registry of Ophthalmic Pathology, with major emphasis on the differential diagnosis of squamous cell carcinomas.

n. Dr. M. Boniuk initiated a study of complications of retinal detachment surgery and of the occurrence of melanomas in eyes treated for retinal detachment.

o. Dr. M. Boniuk completed a study of epibulbar osseous choristomas.

p. Dr. H. Starr initiated a study of the incidence of orbital extension, postoperative occurrence and ultimate outcome of uveal melanomas in relation to type of definitive treatment.

q. Dr. L. Kogan initiated a study of enucleations in childhood with particular reference to the various lesions that clinically give trouble in the differential diagnosis of retinoblastoma.

r. Dr. D. Mousel initiated a study of the topographic distribution of melanoma of the uvea.

2. *Experimental Studies*

a. With the financial support provided by a grant from the Council for Research in Glaucoma and Allied Diseases, Alfred P. Sloan Foundation, Inc., Drs. A. Silverstein, L. E. Zimmerman, and Sylvia Welter have pursued their studies of immunogenic uveitis.

b. Dr. B. Fine and Mr. A. J. Tousimis continued their studies of the ultrastructure of ocular tissues, supported in part by Army R & D grant Number 6X59-01-001 awarded to Drs. B. Rones and L. E. Zimmerman.

c. Drs. H. I. Rodman, F. B. Johnson, and L. E. Zimmerman completed their histochemical studies of asteroid hyalitis.

MISCELLANEOUS ITEMS

Dr. Zimmerman served as the Department of the Army's representative on the N.I.H.'s Sensory Diseases Study Section which held two meetings in Bethesda (January 28 and 29 and September 29 and 30) and one in San Francisco (May 5 to 7).

PUBLICATIONS

The following articles were either published, presented in abstract form, or in press during the year.

a. Boniuk, M., and Zimmerman, L. E.: Necrosis of iris, ciliary body, lens and retina following retinal detachment operations with circling polyethylene tubes, Trans Amer Acad Ophthal Otolaryng, in press.

b. Fine, B. S., and Tousimis, A. J.: The structure of the vitreous body and suspensory ligament of the lens, Arch Ophthal, 65:95-110, 1961.

c. Fine, B. S., and Zimmerman, L. E.: Therapy of experimental intraocular Aspergillus infection, Arch Ophthal, 64:849-861, 1960.

d. Forrest, A. W.: Tumors about the eye arising in irradiated tissue, Trans Amer Acad Ophthal Otolaryng, in press.

e. Jones, S. T., and Zimmerman, L. E.: Histopathologic differentiation of granular, macular, and lattice dystrophies of the cornea, Amer J Ophthal, 51:394-410, 1961.

f. Sanders, T. E.: Intraocular juvenile xanthogranuloma (nevoxanthoendothelioma) a survey of 20 cases, Trans Amer Ophthal Soc, 58:59-74, 1960.

g. Silverstein, A. M.; Welter, S., and Zimmerman, L. E.: A progressive immunization reaction in the actively sensitized rabbit eye, J Immunol, 88:312-323, 1961.

h. Silverstein, A. M.; Welter, S., and Zimmerman, L. E.: Studies of experimental ocular hypersensitivity to simple chemicals, Amer J Ophthal, 50:937-944 (Nov., pt. II) 1960.

i. Tousimis, A. J., and Fine, B. S.: Electron microscopy of the pigment epithelium of the iris. In George K. Smelser: Symposium on Structure of the Eye, New York, Academic Press, pp. 441-452.

j. Zimmerman, L .E.: Pigmented tumors of optic nerve head: The XXII Annual de Schweinitz Lecture (abstr), Amer J Ophthal, 50:338 (Aug.) 1960.

k. Zimmerman, L. E.: The Registry of Ophthalmic Pathology: Past, Present and Future: The XVII Jackson Memorial Lecture, Trans Amer Acad Ophthal Otolaryng, 65: 50-113, 1961.

l. Zimmerman, L. E., and Spencer, W. H.: The pathologic anatomy of retinoschisis with a report of two cases diagnosed clinically as malignant melanoma, Arch Ophthal, 63:10-19 (Jan.) 1960.

m. Zimmerman, L. E., and Straatsma, B. R.: Anatomical relationships of the retina to the vitreous body and to the pigment epithelium. In Charles L. Schepens: Importance of the Vitreous Body in Retina Surgery, St. Louis, C. V. Mosby, 1960, pp. 15-28.

REPORT OF COMMITTEE ON OTOLARYNGIC PATHOLOGY

PAUL H. HOLINGER, Chairman

During the past year word was received that the Academy was considering sponsoring a Registry of Living Pathology in Ophthalmology and Otolaryngology at the AFIP. A meeting was held in Washington, D. C., March 19, 1961, which included representatives of the National Institutes of Health, the Armed Forces Institute of Pathology, the Executive Secretary-Treasurer of the Academy, and the chairmen of the Committees on Ophthalmic and Otolaryngic Pathology. During this meeting it was suggested that the Committee on Otolaryngic Pathology prepare and submit an application for a training grant in Otolaryngic Pathology to parallel one made for Ophthalmic Pathology. The material was assembled and reviewed by the chairman with Dr. Samuel H. Rosen, Registrar, Registry of Otolaryngic Pathology in Washington, D. C. Dr. Rosen's suggestions were discussed at a meeting of those members of the Committee attending the various otolaryngic meetings in Lake Placid in May 1961 and incorporated in a draft of the application submitted to all members of the Committee and to Dr. Benedict, Executive Secretary-Treasurer of the Academy.

Further suggestions concerning the grant applications have been received from members of the Committee during the summer months and will be discussed at a meeting of the Committee to be held during Academy week. Of particular significance is a paragraph from a letter received from Dr. Rosen, who states, "At the present time, however, if the training grants, including the temporal bone laboratory, are approved, the ENT Pathology Branch must undergo a reorganization and realignment of its sights, whereas the Ophthalmic Pathology Branch is prepared to institute the training program with only a few additions to its staff."

Appended to this report is the October 1960 report of the Registrar of the Registry of Otolaryngic Pathology, previously submitted to the Executive Secretary-Treasurer of the Academy and to all members of the Committee. In this report the status of Atlas, the Slide Study and Teaching Sets, the Temporal Bone Project, Residencies and the Registry of Otolaryngic Pathology were summarized by Dr. Rosen.

REPORT ON REGISTRY OF OTOLARYNGIC PATHOLOGY
October 1961

I. Slide Study and Teaching Sets

The breakdown of requests for these sets during the fiscal year is as follows:

	LARGE ENT SET (NEW)	SMALL ENT SET (OLD)	ASCP 1946 SEMINAR ON SPECIAL SENSES	TOTALS
Civilian	197	23	20	240
Government employed	40	22	15	77
Totals	237	45	35	317

These figures indicate a rather surprising increase in the use of the microslide sets of 80 per cent over last year. They also show that teh proportion of civilian doctors to government employed doctors who make use of the sets remains in the ratio of more than 3 to 1. The largest number of sets on loan at one time was 34, in August.

Considerable progress was made on improvement and completion of sets, although more slowly than was anticipated. For the large microslide study set, brief clinical notes were extracted from the records by a Walter Reed Army Hospital ENT Resident in training at the AFIP, and brief microscopic descriptions were made of the slides. These are now ready for editing and incorporation in the sets. The suggestion of the Registrar in the 1959 and 1960 annual reports that the Academy contribute to the Registry 50 copies of the Atlas of Otolaryngic Pathology by Ash and Raum to be distributed with the study sets on a loan basis has apparently not been acted upon. The Registrar would like to reemphasize that the use of the Atlas in this manner would greatly enhance the teaching value of the sets and might at the same time serve as a more effective advertising medium for the sale and more general use of the Atlas.

With the assistance of a Walter Reed Army Hospital ENT Resident in training at the AFIP, a 2 x 2 lantern slide teaching set of ENT histopathology was prepared from the microslide study set and is ready for editing. It is anticipated that the clinical and microscopic notes prepared for the microslide set will also be available for the lantern slide set, and that the two sets will complement each other for group lecture and individual study purposes.

With the assistance of Walter Reed Army Hospital and Washington Medical Center ENT residents in training at the AFIP, a 2 x 2 lantern slide teaching set of approximately 175 clinical photographs of ENT entities has been prepared and edited and is now ready for duplication and addition to the list of study and teaching material available for loan from the Registry.

The third teaching set of 2 x 2 lantern slides, namely, of ENT roentgenograms, has been extensively edited with the result that many of the slides were considered unsuitable and replacements will be required.

During the year Dr. Paul H. Holinger donated to the Registry a set of 2 x 2 kodachrome lantern slides of endoscopic photography of the eardrum, pharynx, larynx, trachea, bronchi and esophagus from the Jacques Holinger Memorial Fund. This set of illustrations of exceptional technical excellence is being put into format for addition to the loan service of the Registry.

Also during the year Dr. James W. McLaurin offered to supply several sets of serially sectioned temporal bones to the Registry. This generous offer should do much to help fill an important gap in the Registry loan service.

II. Residencies

The ENT Service of the U. S. Naval Hospital, Bethesda, Maryland, has made arrangements to assign one of its residents annually

for a 2-to-3-month period of training in Otolaryngic Pathology at the Armed Forces Institute of Pathology. This is in addition to similar arrangements already existing with the ENT Service of the Walter Reed Army Hospital and the ENT Service of the Washington Medical Center, a private civilian hospital in Washington, D. C.

Our experience thus far with this abbreviated and informal type of training seems to indicate that the trainees acquire a familiarity with otolaryngic pathology which goes beyond their immediate needs for the specialty board, and perhaps also a broader point of view. For example, one of the ENT residents of the Walter Reed Army Hospital, who assisted in preparing the histopathology lantern slide teaching set, has already used this set on two occasions to lecture to groups of ENT residents.

III. Registry of Otolaryngic Pathology

The following discussion and the attached tables constitute the annual report on the Registry of Otolaryngic Pathology prepared by the Medical Statistics Section of the AFIP with the collaboration of the Registrar. To the Medical Statistics Section is delegated the responsibility for the abstracting and registration of the cases selected by the various Registrars, and for the preparation of requisite statistical reports on the registries.

Since its establishment under the sponsorship of the American Academy of Ophthalmology and Otolaryngology in 1935, the Registry of Otolaryngic Pathology has increased by 304 selected cases per year, on the average, to a total of 7,899 as of August 31, 1961. An additional approximately 6,000 (of the total of 8,893) cases in the Registry of Dental and Oral Pathology represent entities which concern the otolaryngologist also: these are being subjected to selection for inclusion in the Registry of Otolaryngic Pathology as well as the Registry of Dental and Oral Pathology.

Table I shows the sources of the 7,592 otolaryngic cases which have been abstracted to date. Although the Registry is largely comprised of Armed Forces personnel and their dependents and of veterans, the contributions by civilian physicians amount to 17 per cent of the total. This percentage could be considerably higher if all cases submitted through civilian pathologists were sufficiently well

TABLE I.—SOURCES OF CASES IN THE REGISTRY OF OTOLARYNGIC PATHOLOGY — 31 AUGUST 1961

CONTRIBUTOR	TOTAL	CASES ABSTRACTED DURING PRIOR YEARS	CASES ABSTRACTED 1 SEPT. 1960 THRU 31 AUG. 1961
	Number		
Total	7,592	7,049	543
Army	2,694	2,609	85
Navy	547	518	29
Air Force	275	241	34
Veterans Administration	2,591	2,278	313
Civilian	1,388	1,309	79
Others*	97	94	3
	Percent		
Total	100	100	100
Army	36	37	16
Navy	7	7	5
Air Force	4	3	6
Veterans Administration	34	32	58
Civilian	18	19	14
Others*	1	2	1

* Other governmental and quasi-governmental agencies.

identified and documented to make them useful for inclusion in the Registry for evaluation of prognoses. Submitting of a single slide accompanied by a few words of explanation written on a prescription blank, as sometimes happens, or by a letter which contains little or no clinical history, as often happens, not only makes the rendering of a proper consultative diagnosis difficult, but also makes the case of doubtful value for inclusion in the Registry.

Table II presents the anatomic sites of otolaryngic lesions and the type of material available for study. The two leading sites are the neck (3,512 cases), with nine times as many lesions in the deep structures as in the superficial; and the pharynx, with a ratio of 2.9 in the oropharynx to 1 in the nasopharynx. Ninety per cent, or 6,833 cases, consist of surgical specimens submitted to the AFIP for consultation. Since civilian cases are almost entirely in this group, the 1,312 from civilian sources represent 20 per cent of the surgical cases in the Registry.

Table III shows the distribution of the 8,893 cases in the Registry of Dental and Oral Pathology, grouped according to anatomic site and neoplastic and non-neoplastic categories. The entries under "jaw" and "other sites" for the most part do not concern the otolaryngologist, which leaves approximately 6,000 cases that do concern him. Neoplasms comprised almost 58 per cent, which approximately equal division between malignant and benign lesions. The leading anatomic sites of concern to the otolaryngologist are: the mucous membrane of the lips, 2,355 cases, with

TABLE II.—REGISTRY OF OTOLARYNGIC PATHOLOGY BY ANATOMIC SITE AND TYPE OF MATERIAL

ANATOMIC SITE	NUMBER OF CASES	TYPE OF MATERIAL (PERCENT)		
		SURGICAL	SURGICAL & AUTOPSY	AUTOPSY
Total	7,592	90.0	7.0	3.0
Neck	3,512	93.0	6.0	1.0
Superficial neck	337	99.0	1.0	—
Deep neck	3,175	92.0	6.0	2.0
Nose	1,539	94.0	4.0	2.0
Nasal chamber	1,143	97.0	2.0	1.0
Paranasal sinuses	353	84.0	9.0	7.0
Chamber and sinus	29	76.0	21.0	3.0
Skin	14	93.0	7.0	—
Pharynx	1,875	83.0	12.0	5.0
Nasopharynx	473	78.0	15.0	7.0
Oropharynx	1,399	85.0	11.0	4.0
Naso- and oropharynx	3	67.0	33.0	—
Ear	553	93.0	4.0	3.0
Internal and middle	483	93.0	4.0	3.0
External	70	96.0	1.0	3.0
Temporal bone	100	68.0	11.0	21.0
Other sites	13	85.0	7.5	7.5

TABLE III.—DISTRIBUTION OF CASES IN THE DENTAL AND ORAL REGISTRY AS OF 31 AUGUST 1961

SITE	ALL CASES	DISEASE		
		NEOPLASTIC		NON-NEOPLASTIC
		MALIGNANT	BENIGN	
	Number			
All anatomic sites	8,893	2,513	2,602	3,778
Mucous membrane	1,123	323	389	411
Tongue	608	282	178	148
Lips	2,355	1,149	269	937
Cheeks	393	188	80	125
Salivary glands	1,325	140	962	223
Antrum	172	56	15	101
Jaw	1,644	129	495	1,020
Other sites	1,273	246	214	813
	Percent			
All anatomic sites	100.0	28.3	29.2	42.5
Mucous membranes	100.0	28.8	34.6	36.6
Tongue	100.0	46.4	29.3	24.3
Lips	100.0	48.8	11.4	39.8
Cheeks	100.0	47.8	20.4	31.8
Salivary glands	100.0	10.6	72.6	16.8
Antrum	100.0	32.6	8.7	58.7
Jaw	100.0	7.8	30.1	62.1
Other sites	100.0	19.3	16.8	63.9

SQUAMOUS CELL CARCINOMA OF THE LARYNX*

TABLE IV.—ACTUARIAL SURVIVAL RATES BASED ON A PRELIMINARY STUDY OF 743 CASES IN THE REGISTRY OF OTOLARYNGIC PATHOLOGY

DURATION (YRS.) FROM SURGERY TO LAST FOLLOW-UP	SURVIVAL RATES				
	ALL PATIENTS	SITE OF INVASION			
		MUCOSA	SUB-MUCOSA	LYMPHATICS	SITE NOT SPECIFIED
0	100.0	100.0	100.0	100.0	100.0
1	71.8	90.9	80.2	47.7	67.5
2	54.3	86.4	63.8	28.4	48.6
3	47.2	86.4	55.9	21.8	39.9
4	41.9	79.6	50.5	17.4	34.6
5	38.4	77.3	47.9	11.8	30.5
6	36.3	77.3	45.6	10.3	27.9
7	33.9	71.0	44.1	8.4	25.0
8	31.7	71.0	42.1	8.4	21.4
9	29.4	66.9	38.1	8.4	20.6
10	26.6	62.8	35.4	8.4	17.2
11	26.2	62.8	34.4	8.4	17.2
12	24.7	62.8	31.9	7.6	17.2
13	23.0	62.8	30.4	7.6	16.0
14	23.0	62.8	30.4	7.6	16.0
15 and over	22.3	62.8	28.5	7.6	16.0
No. of patients in group	743	44	319	94	286

* Combined intrinsic and extrinsic.

nearly one-half of these being malignant neoplasms; salivary glands, 1,325 cases, with 73 per cent benign neoplasms; and mucous membranes other than lips, 1,123 cases, almost two thirds of which are neoplasms.

This distribution and that shown for the Registry of Otolaryngic Pathology cannot be considered as representing a true distribution of the disease entities in the general population; it is recognized that cases sent to the AFIP for consultation are more likely to be atypical than typical, and tend to be concentrated in the military and veteran age groups. However, they do comprise a very large collection of cases suitable, among other things, for evaluation of pathologic classifications, and for determining the adequacy of such classification for prognostic purposes through follow-up of patients.

One such effort to obtain prognostic data for evaluation is still in progress. A total of 211 additional cases of *squamous cell carcinoma of the larynx* were followed during the year, bringing the number now in the study to 743 combined intrinsic and extrinsic carcinomas. The value of adding cases in order to approach more nearly the true expected rate of survival is clearly shown by the differences in expected percentages surviving as reported in 1960 and in 1961. For example, the 15 years and over survival rate of all patients was 32 per cent in the previous annual report as compared with 22 per cent in 1961. Figure 1, attached, shows the survival rates by site of invasion, based on data in Table IV.

IV. Finances

Under present procedures, the registration and statistical functions of the Registry are being accomplished at considerable cost to the U. S. Government. Funds contributed to the American Registry of Pathology by civilian sponsors of the individual registries are insufficient to supply all its needs. Therefore, only one low-salaried employee has been assigned by the American Registry of Pathology to the Medical Statistics Section. This employee assists in duties commensurate with her low salary ($3,371.00 a year), but registration of all ARP cases and the abstracting of data in only two of the registries occupy all the full time of one employee paid by the Veterans Administration, at an annual salary of about $4,600. Furthermore, the abstracting of data in the Registry of Otolaryngic Pathology and the survey of carcinomas of the larynx are being done as part of the work of a professional statistician paid by the Department of the Army, at a salary level of approximately $6,600. The supervisory costs for planning, review, and resolution of problems, are of course even more costly.

Far more useful analyses of Registry material could be made if one statistical clerk ($4,000.00 to $4,300.00 yearly) could be supplied by the American Registry of Pathology for full time work in abstracting more detailed data on the Registry as a whole, and on selected disease entities which warranted thorough clinicopathologic investigation and follow-up. The professional statistician now doing this work could then be freed to aid in the final statistical analysis and interpretation of the data. This could be accomplished if the sponsoring societies increased their annual contributions by even a modest sum.

The Academy at its last annual meeting, October 9-14, 1960, voted to resume contributions to the Registries of Ophthalmic and Otolaryngic Pathology in the amount of $2,500.00 per year, to be divided equally between the two registries. The first contribution of $2,500.00 was made for the fiscal year beginning January 1, 1961.

V. Application to National Institutes of Health for Training Grant in Otolaryngic Pathology

Dr. Holinger, as chairman of the Committee on Otolaryngic Pathology, recently sent to all members of the committee a copy of a report in which he succinctly outlined the background of this application and the progress made to date in its formulation. For the record of the Registry I quote Dr. Holinger's statement:

"During the past year word was received that the Academy was considering sponsoring a Registry of Living Pathology in Ophthalmology and Otolaryngology at the AFIP. A meeting was held in Washington, D. C., March 19, 1961, which included representatives of the N.I.H., the AFIP, the Executive Secretary-Treasurer of the Academy and the chairmen of the Committees of Ophthalmic and Otolaryngic Pathology. During this meeting it was suggested that the Committee on Otolaryngic Pathology prepare and submit an application to the National Institutes of Health for a training grant in Otolaryngic Pathology to parallel one made for Ophthalmic Pathology. The material was assembled and reviewed by the chairman with Dr. Samuel H. Rosen, Registrar, Registry of Otolaryngic Pathology in Washington, D. C. Dr. Rosen's suggestions were discussed at a meet-

ing of those members of the Committee attending the various otolaryngic meetings in Lake Placid in May 1961 and incorporated in a draft of the application submitted to all members of the Committee and to Dr. Benedict, Executive Secretary of the Academy.

Further suggestions concerning the grant applications have been received from members of the Committee during the summer months and will be discussed at a meeting of the Committee to be held during Academy week. Of particular significance is a paragraph from a letter received from Dr. Rosen who states, "At the present time, however, if the training grants, including the temporal bone laboratory, are approved, the ENT Pathology Branch must undergo a reorganization and realignment of its sights, whereas the Ophthalmic Pathology Branch is prepared to institute the training program with only a few additions to its staff."

I should like to add a few general observations on the subject of a training program in otolaryngic pathology. I think it is safe to say that Otolaryngology has not been as successful as Ophthalmology in attracting beginners in the field to the more scientific or academic aspects of the specialty. I believe this is largely attributable to the fact that the study of the inner ear—which, as a special sense organ, is analogous to the eye in its special importance, its special interest and its special challenge—has been relatively neglected because of the unique problems involved in obtaining, processing and studying the temporal bone. With the current spurt of interest in the study of the temporal bone, and particularly with the recent organized effort to remove the major stumbling blocks in the way of this study, I see no reason why Otolaryngology should not soon come into its own and challenge Ophthalmology for supremacy in the present partnership.

The fact remains, however, that at the present juncture, at the AFIP as elsewhere, otolaryngic pathology does not enjoy or require the same special treatment including special laboratory facilities as does ophthalmic pathology. The Ophthalmic Pathology Branch has for many years had a separate tissue processing laboratory, required by the nature of its work, as well as a formal training program. The ENT Pathology Branch, on the other hand, while it has for some years been participating in ENT residency training programs, has no formal training program of its own, and in the absence of regular temporal bone work has had no need for an independent tissue laboratory. If and when a temporal bone center is established at the AFIP, otolaryngic pathology will be on the same footing as ophthalmic pathology, and it will then require a separate laboratory and warrant a more formal training program and a different organizational set-up. It would seem, therefore, that in planning a training program and a special laboratory in otolaryngic pathology at the AFIP, to include the processing and study of temporal bones, the understandable enthusiasm and sense of urgency should be tempered by caution dictated by hard practical considerations. We should, I believe, be satisfied, as a beginning, with a more modest program on which we could build as rapidly as acquired experience indicated.

On the positive side I am glad to say that the Director of the AFIP has again indicated his interest in and approval of a training program in otolaryngic pathology at the AFIP to include the establishing of a facility for the processing and study of temporal bones, and to be financed by a grant from the National Institutes of Health through the American Academy of Ophthalmology and Otolaryngology. He has also indicated that the AFIP will furnish the necessary laboratory and office space for such a venture.

REPORT OF THE COMMITTEE ON RESEARCH IN OTOLARYNGOLOGY

G. O. Proud, Chairman

At its last business meeting in October 1960, the Committee for Research in Otolaryngology voted to replace Dr. George Misrahy, Dr. Harold Schuknecht and Dr. W. Dewey Neff with Dr. Donald H. Eldredge, Dr. James F. Jerger and Dr. John Kirchner. The members for the Committee for Research for the year, therefore are as follows: Richard Bellucci, M.D.; Cesar Fernandez, M.D.; Aram Glorig, M.D.; Merle Lawrence, Ph.D.; B. H. Senturia, M.D.; Catherine Smith, Ph.D.; Juergen Tonndorf, M.D.; Hans von Leden, M.D.; Donald H. Eldredge, M.D.; James F. Jerger, Ph.D.; John Kirchner, M.D.; G. O. Proud, M.D., Chairman.

The Fourth Annual Research Meeting in Otolaryngology was held at Northwestern University on the Saturday before the Academy met. Eleven papers were presented on a variety of subjects covering research in the field of Otolaryngology. The program chairman was Dr. Hans von Leden. Dr. Aram Glorig was appointed program chairman for the coming year. It was his task to organize

a scientific meeting to be presented on the Saturday prior to the Academy meetings in Chicago in October 1961.

On the recommendation of the committee, the Academy presented certificates and monetary awards for excellence in original investigation to the following individuals at the Academy meeting in 1960:

George W. Allen, M.D.: The Mechanism of Bone Conduction

F. R. Kirchner, M.D.: Method for the Identification and Localization of Cerebrospinal Fluid Rhinorrhea and Otorrhea

A. Panagopoulos, M.D.: Bone Involvement in Maxillo-Facial Cancer

Frank M. Ritter, M.D.: Reversible Hearing Loss in Human Hypothyroidism and Correlated Changes in the Chick Inner Ear

George T. Singleton, M.D.: Experimental Fracture of the Stapes in Cats

The Awards Subcommittee with Dr. Juergen Tonndorf as Chairman has selected the 1961 award winners who are to receive a certificate and a monetary award at the forthcoming Annual Academy Meeting: D. Thane Cody, M.D.; John J. Welsh, M.D., and Louis W. Welsh, M.D.; Albert J. Harris, M.D.; Frederick L. Dey, M.D.

The next business meeting of the committee will be held on Wednesday, October 11, 1961, at 12 noon in Private Dining Room 6 on the third floor of the Palmer House.

Next year's activities of this committee will consist again of sponsoring the Annual Research Meeting and selecting research award winners for 1962.

BUDGET REQUESTS FOR 1962

1. $2,000.00 for annual awards for original investigation in Otolaryngology.

2. Adequate funds to provide for luncheon and meeting place for the annual business meeting.

It was the decision of the members of the committee that each year three of us would resign and make room for three new, young members. The chairman of the committee will automatically resign from the committee at the end of his two years of tenure.

Since its beginning, the committee has felt that the meetings should be kept small in order to provide for informality and absence of pressure for the young investigators. Through the years, however, we have felt the increasing pressure from individuals who would like to attend the scientific meeting and find space to do so inadequate. We hope, however, that, in the future, we may continue on a small scale as we have in the past. If the Council feels otherwise about this matter, please advise.

REPORT OF THE COMMITTEE ON STANDARDIZATION OF TONOMETERS

ELMER J. BALLINTINE, Chairman

I. Tonometer Specification

During the year the Committee met on three occasions with representatives of tonometer manufacturers and testing laboratories to discuss the implementation of specification 5 adopted October 13, 1959. It is the opinion of the chairman that these meetings have resulted in universal acceptance of specification 5; that the manufacturers are convinced of the necessity of adhering to it; and that the commercial testing laboratories are now able to examine tonometers for compliance with specification 5. The Committee thinks that there is now no reason for the earlier specifications to be used at all, and recommends that all Schiøtz-type tonometers be manufactured and certified to specification 5.

The work on validating the acceptance of a new profile for the tonometer plunger tip that will eliminate the concavity and permit the use of a flat base plunger is being continued by the Cleveland Testing Station and others. The Committee thinks that there has not yet been enough experience with the flat-base plunger to permit its adoption now.

II. Testing Station

The Cleveland Testing Station continued to test tonometers submitted by individuals and a report of its activities is appended.

The development of better testing methods and of the new form for the tonometer plunger is being continued. The Academy continued to pay part of the salary of the full-time technician employed in this work.

III. Commercial Testing Laboratories

The Inland Testing Laboratory of the Cook Technological Center, Morton Grove, Illinois, has continued to certify electric tonometers for manufacturers and the Electrical Testing Laboratories of New York continue to be the only laboratory certifying mechanical tonome-

ters for manufacturers. A report of the activities in testing tonometers is appended. The R. O. Gulden Company has continued to cooperate with the CST in repairing tonometers and helping to implement specification 5. A report of its activities is appended. [On file in the Academy office.]

IV. Membership

Membership of the committee was unchanged.

V. Evaluation of the Mackay-Marg Tonometer

The Committee has been impressed with the soundness of the theoretical analysis which preceded the development of the Mackay-Marg electric tonometer. It was pleased, therefore, to have an opportunity for Dr. Robert Moses to participate in a practical trial of the Mackay-Marg tonometer. Dr. Moses' report of this project is appended. [The report by Dr. Moses will be published in the January-February 1962 issue of the TRANSACTIONS.]

VI. International Council of Ophthalmology (Concilium Ophthalmologicum Universale); Committee on Standardization of Tonometers.

During the past year there was an exchange of correspondence among members of the American Committee and members of the International Committee concerning the adoption and implementation of features of specification 5 in Europe so that European and American standards will be compatible. Dr. Kronfeld is the American representative on the International Committee and has succeeded in reconciling the views of those concerned so that there should now be no conflict between American and European specifications.

VII. Future Plans

Work will be continued on the preparation for publication of the methods for testing for compliance with specification 5. The need for the services of the Testing Station continues. Additional data bearing on several points of tonometer design and calibration are needed.

The chairman recommends that the activities of the Committee be continued.

REPORT OF THE COMMITTEE ON HEAD AND NECK SURGERY

GEORGE A. SISSON, Chairman

The following is a resume of the activities of the Committee on Surgery of the Head and Neck of the American Academy of Ophthalmology and Otolaryngology from October 1960 through September 1961.

I. October 1960

The Committee was authorized by the Academy Council, with George A. Sisson, M.D., Syracuse, N. Y., appointed Chairman.

II. December 1960

The following men were appointed to the Committee:

Edwin W. Cocke, Jr., M.D., Memphis
John J. Conley, M.D., New York
John F. Daly, M.D., New York
Paul H. Holinger, M.D., Chicago
W. Franklin Keim, M.D., East Orange, N. J.
Francis L. Lederer, M.D., Chicago
John S. Lewis, M.D., New York
Dean M. Lierle, M.D., Iowa City
Joseph H. Ogura, M.D., St. Louis
Joel J. Pressman, M.D., Los Angeles
F. Johnson Putney, M.D., Philadelphia
William S. Trible, M.D., Washington, D. C.

III. January 1961

Dr. Sisson attended the Academy program-planning meeting in Chicago called by Dr. Benedict. Arrangements were made for the Committee's participation in the fall program.

Program subcommittee appointed: W. Franklin Keim, M.D., Chairman; John F. Daly, M.D., John J. Conley, M.D.

IV. May 1961

A. The following program has been scheduled for presentation at the Academy meeting on Sunday, October 8, 1961 at 8:00 P.M. in the Crystal Room at the Palmer House, Chicago, Ill.: [See Official Program, July-August 1961 TRANSACTIONS.]

B. The Committee will meet Monday, October 9, 1961, at 12:00 noon at the Palmer House (room to be announced) to formulate plans for 1962.

C. Cine-Panel on Problem Cases in Head and Neck Surgery co-sponsored by the

Committee and the American Society for Head and Neck Surgery to be presented on Tuesday, October 10, 1961 at 3:30 P.M. in the Grand Ballroom of the Palmer House:

Moderator: John J. Conley, M.D., New York, N. Y.

Panelists: Frank Lathrop, M.D., Boston, Mass.
Alden Miller, M.D., Los Angeles, Calif.
Daniel Baker, M.D., New York, N. Y.
Frank Batley, M.D., Syracuse, N. Y. (By invitation)

In 1961 members of the Committee paid individual expenses incurred. Expenses for guest speakers were paid by the American Society for Head and Neck Surgery, co-sponsor of the scientific program. Since an increase in the number of meetings and activities is expected in 1962, the Committee respectfully requests that a sum of $3,000.00 be allocated in the Council's budget for 1962 for the Committee's activities. These activities will include more frequent meetings of the Executive Committee and expenses incurred by the new subcommittee formed for the Study of Head and Neck Residency Training in Otolaryngology. Other items will be travel expenses for distinguished speakers for the Committee's 1962 scientific program. It is expected that the Committee will be expanded during 1962.

REPORT ON THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

M. Elliott Randolph
Academy Representative

As representative of the American Academy of Ophthalmology and Otolaryngology to the American Association for the Advancement of Science, I have nothing to report concerning the activities of this organization for the year 1960-1961.

REPORT ON THE AMERICAN BOARD OF OPHTHALMOLOGY

Kenneth C. Swan
Academy Representative

As the senior representative from the American Academy of Ophthalmology and Otolaryngology, it is my pleasure to present the annual report of the American Board of Ophthalmology. Other representatives from the Academy are, Banks Anderson, Fred N. Wilson, and F. Phinizy Calhoun. Officers of the American Board for 1961 are, Kenneth C. Swan, Chairman, Harold H. Joy, Vice- Chairman, and Merrill J. King, Secretary-Treasurer. There are twelve active members, four consultants, and four emeritus members.

Since its organization in 1916, the American Board of Ophthalmology has conducted 119 examinations and has issued certificates to 5,244 candidates. A written qualifying examination was held on January 23, 1961, in twenty-four cities for 112 candidates; 92 passed and thereby qualified for the Oral and Practical Examinations. The next Oral and Practical Examinations will be held in Chicago, October 4-7, 1961; in San Francisco, May 14-18, 1962, and in St. Louis, October 28-November 1, 1962.

Several years ago, the Board greatly improved its written qualifying examination by adopting a comprehensive multiple-choice type of examination which could be graded objectively and subjected to critical analysis of its scope and validity. A special committee, under the chairmanship of Dr. A. G. DeVoe, now is reviewing the procedures used in the Oral and Practical Examination. A representative from an educational testing service was employed to observe procedures used by the Board in its October 1960 Oral and Practical Examination.

New requirements for examination were put into effect in 1961. Individuals who have completed 36 months of formal ophthalmological training (approved residency and basic science courses) may apply for the written qualifying test after twelve months of practice or institutional work, a total of 48 months. All other individuals may apply for the written test after 60 months in ophthalmology, or 72 months of combined ophthalmology and otolaryngology. Certification by the Educational Council of Foreign Medical Graduates now is required of graduates from foreign medical schools, Canadian schools excepted. The requirement that each candidate hold a full citizenship in the country where he practices still is in effect, but it is being reconsidered on the basis of new international developments.

A history of the American Board of Ophthalmology has been prepared by Doctors Frederick C. Cordes and C. Wilbur Rucker, with the assistance of the Registrar, Miss Lea Stelzer. This interesting and valuable history of America's first specialty Board was presented at the May 1961 meeting of the American Ophthalmological Society. It will be made

available in booklet form. The history describes the organization of the Board, the evolution of its policies and functions, and the work of the 65 ophthalmologists who have served or are now serving ophthalmology as members of the Board.

During the past year, there have appeared a number of articles expressing concern about possible interference with private practice by the various specialty Boards; therefore, it seems appropriate to reiterate the long-standing policies of the American Board of Ophthalmology in relation to the practice of this specialty. The American Board of Ophthalmology has never been concerned with measures that might gain special privileges or recognition for its diplomates in the practice of ophthalmology. The Board has cooperated with the American Medical Association in a Residency Review program; however, it is neither the intent nor has it been the purpose of the Board to define requirements for membership on the staff of hospitals. The prime object of the Board is to pass judgment on the education and training of competent and responsible ophthalmologists, not who shall, or shall not, practice ophthalmology as a specialty. The Board does not intend in any way to interfere with, or limit, the professional activities of any duly licensed physicians. Its chief aim is to elevate the standards of qualifications for specialists in ophthalmology and to certify as specialists doctors of medicine who voluntarily appear before the Board for such recognition and certification.

As the retiring representative of the American Board of Ophthalmology, I wish to express my appreciation to the American Academy of Ophthalmology and Otolaryngology for providing me with the opportunity to serve ophthalmology as a member of the Board.

REPORT ON THE AMERICAN BOARD OF OTOLARYNGOLOGY

FRANCES E. LEJEUNE
GEORGE F. REED
Academy Representatives

As representatives of the American Academy of Ophthalmology and Otolaryngology to the American Board of Otolaryngology, we wish to make the following report:

The American Board of Otolaryngology held a meeting at the Palmer House in Chicago on October 3, 1960. One hundred and two candidates were examined, and of this group 85 passed, 14 were conditioned, and 3 failed.

The one year of approved training in general surgery as a special requirement for certification by the Board, and three years of otolaryngology became effective as of July 1, 1960.

The same officers were re-elected: Bernard J. McMahon, M.D., President; Werner Mueller, M.D., Vice President; and Dean M. Lierle, M.D., Secretary and Treasurer.

REPORT ON AMERICAN COLLEGE OF SURGEONS, BOARD OF GOVERNORS

SHIRLEY HAROLD BARON
Senior Academy Representative

The 1960 American College of Surgeons Annual Medical Congress was held in San Francisco, California, from October 8 to October 12. The general over-all program was excellent, but there was no program for ophthalmology or otolaryngology. This was due to the fact that the meeting of the American Academy of Ophthalmology and Otolaryngology was being held simultaneously in Chicago. It is unfortunate that this conflict continues to occur, since there are many members of the Academy who are desirous of attending both meetings. The Advisory Councils for Ophthalmology and Otolaryngology of the American College of Surgeons are still taking this matter under discussion in the hope that eventually the problem can be resolved.

The Annual Meeting of the Board of Governors was held on October 8, 1960. The following reports were presented: (1) Ways and Means of Accomplishing Help for Small Hospitals; (2) What Constitutes Adequate Training for a Surgeon; (3) The Dangers of Partial Surgical Training of Practitioners and the Privileges of the Operating Room Permitted to Untrained Men; (4) How the Public Can Be Educated to Pick a Qualified Surgeon; (5) The Proper Disposal of Insurance Fees of Patients Operated Upon by Residents. The caliber of these reports was superior. The details of each report, if desired, can be obtained by writing to the Executive Director of the College. The report on "The Proper Disposal of Insurance Fees of Patients Operated Upon by Residents" is especially recommended.

Dr. Frederick C. Cordes of San Francisco was re-elected to the Board of Regents of the College after an absence of one year. The Academy now has representatives on the Board of Regents in both ophthalmology and otolaryngology, Dr. Dean M. Lierle being the representative of otolaryngology.

Dr. Shirley H. Baron was elected to the Governors' Committee on Nominations for 1960-1961.

The 1962 College meetings are: Los Angeles, California, January 29-February 1; Detroit, Michigan, March 5-7; Memphis, Tennessee, March 26-28; Washington, D. C., April 16-18, and the Clinical Congress, October 15-19, Atlantic City, N. J. At the Los Angeles Sectional Meeting there will be excellent programs in ophthalmology and otolaryngology. The Detroit and Memphis meetings will have some papers of interest to the otolaryngologist. The Clinical Congress at Atlantic City will have interesting programs for both ophthalmology and otolaryngology.

On October 2, 1961, there will be groundbreaking ceremonies for the new Headquarters Building of the College in Chicago.

With the expiration of my term of office this year there will still be two vacancies on the Board of Governors to be served by representatives of the Academy. Apparently this situation was brought about by the fact that the Academy did not nominate a representative for 1958.

I wish to thank the American Academy of Ophthalmology and Otolaryngology for the privilege of having served as its representative on the Board of Governors of the American College of Surgeons. Both the Academy and the College have been major interests of mine and I have appreciated the opportunity of combining them.

REPORT ON THE AMERICAN COMMITTEE ON OPTICS AND VISUAL PHYSIOLOGY

ROBERT L. TOUR
Academy Representative

The seventy-fifth meeting of the American Committee on Optics and Visual Physiology was held in Chicago on Sunday, October 9, 1960. Representatives of the Academy at this time were Drs. Kenneth C. Swan, Frederick C. Cordes and James E. Lebensohn. Prior to the meeting, however, Dr. Cordes had resigned and the undersigned subsequently received approval of the Council and membership to fill out the latter's unexpired term. There was also approval of the nomination of Dr. Goodwin Breinin to succeed Dr. Swan effective January 1, 1961. During the past year, therefore, Drs. Tour, Lebensohn and Breinin have represented the Academy as regards the Committee. The other members of the Committee consist of three representatives each from the American Ophthalmological Society, the Section on Ophthalmology of the American Medical Association, and the Association for Research in Ophthalmology.

The following significant subcommittee reports were presented at the time of the 1960 meeting:

Dr. Louise Sloan called attention to an article describing new visual acuity charts which was published in the December 1959 *American Journal of Ophthalmology* and which was reprinted in the *Continental Digest*. She also stated that the American Medical Association, through the Council on Medical Physics, did not see fit to approve of any special set of charts inasmuch as they were already "generally available from commercial sources." Further, she stated that Bausch and Lomb had decided against widely presenting the test charts that were made for the Committee. Apparently, the American Optical Company and the Good-Lite Company have expressed interest in producing acceptable charts.

Dr. Sloan also reported on a study on screening tests for color perception. It would appear that Ishihara plates of different editions, while apparently similar on casual inspection, may vary tremendously in diagnostic efficiency. It seems wasteful, therefore, to evaluate each new version of the test until some final standardization is agreed upon.

Dr. Carl Rudolph, reporting for the subcommittee on the Standardization of Ophthalmic Lenses, urged ophthalmology to "maintain its present structure in coping with what may be rapid developments." He strongly recommended some sort of standardization in such areas as the base curve of spectacle lenses, material, hardness, etc.

Following the report of the subcommittee on traffic safety, the Committee unanimously agreed that the general usage of colored or tinted lenses might tend to increase rather

than decrease the incidence of traffic accidents. An additional subcommittee was authorized to take whatever action it deemed advisable to discourage the sale and use of tinted lenses, this for the purpose of reducing the incidence of night traffic accidents.

The subcommittee on contact lenses presented a detailed report through Dr. Louis Girard of Houston. As a result, a motion was passed favoring the establishment of an "American Council on Corneal Lenses" to be comprised of three members from each of the four parent societies of the Committee. This Council would encourage a full interchange of information and research in the involved area and would attempt to delineate the ethics involved in the physician-technician relationship. It would also attempt to establish standards for the approval of optical technicians in this field, and would attempt to warn the patient against unscrupulous advertising by unethical practitioners.

Finally, the American Committee on Optics and Visual Physiology recommends as follows:

1. That the American Academy of Ophthalmology and Otolaryngology continue its sponsorship and financial support of the Committee.

2. That Dr. Robert L. Tour be appointed for a period of three years as a representative of the Academy to the American Committee on Optics and Visual Physiology, effective January 1, 1962.

3. That there be established an "American Council on Contact Lenses," to consist of three members from each of the main parent societies of the Committee.

REPORT ON THE AMERICAN ORTHOPTIC COUNCIL

FRANK D. COSTENBADER
PHILIP KNAPP
JOHN W. HENDERSON
Academy Representatives

The twenty-sixth meeting of the American Orthoptic Council was held in Chicago on October 11, 1960, Dr. Philip Knapp, President, presiding. Representing the American Academy of Ophthalmology and Otolaryngology were Dr. John W. Henderson, Dr. Philip Knapp, and Dr. Frank D. Costenbader. Dr. Costenbader continues his excellent work as Chairman of the Examinations Committee. Dr. Knapp has served as president of the Council for two years. Dr. Henderson is Chairman of the important Instruction Committee.

During the year 1960-1961 the activities of the Council were more or less routine. The following deserve special mention:

1. Thirty-two orthoptic technician candidates for certification were examined in the annual written examinations. Twenty-nine candidates completed the oral and practical examinations satisfactorily and were granted certification.

2. The Basic Course in Orthoptics for Technicians was given in Ann Arbor, Michigan, in 1960 under the direction of Dr. John W. Henderson. Twenty students completed the course satisfactorily.

3. The eleventh volume of the American Orthoptic Journal was published in late spring of 1961, under the editorship of Dr. Webb P. Chamberlain. The Journal is the official publication of the American Association of Orthoptic Technicians and is published through the courtesy and cooperation of the American Academy of Ophthalmology and Otolaryngology.

4. The Syllabus of Orthoptic Instruction has been completed under the guidance of Dr. Hermann M. Burian and is now in the hands of the printers. Copies will be available to all ophthalmologists and orthoptic technicians connected in any way with training or teaching orthoptic technician students.

5. At the suggestion of Dr. Blassingame, the Council thoroughly investigated the advisability of becoming incorporated. After thoughtful consideration it was felt that no useful purpose would be served by incorporation. Dr. Blassingame concurred, and therefore the Council will continue to exist as an autonomous body with representatives from the American Medical Association, the American College of Surgeons, the American Academy of Ophthalmology and Otolaryngology, and the American Ophthalmological Society.

6. Because of increasing interest in orthoptics by Canadian ophthalmologists, because there are an increasing number of centers training orthoptic students in Canada, and because many, if not most, Canadian orthoptic

technicians seek and obtain certification by the American Orthoptic Council, it was decided that it would be advantageous to all concerned to have representation from organized ophthalmology in Canada on the Council. Therefore an invitation has been extended to the Canadian Ophthalmological Society to become a sponsoring organization. It is hoped that the invitation will be accepted.

7. The American Association of Orthoptic Technicians held its annual meeting in conjunction with the annual meeting of the American Academy of Ophthalmology and Otolaryngology in October 1960. Instruction courses and a general scientific program were presented. The joint meeting of the Association and the Council was held on October 12, 1960. Speakers were Dr. William Havener, Miss Barbara Simmons, and Dr. Alton V. Hallum. Sectional meetings of the AAOT were held in various parts of the country in the spring of 1961. The Lancaster award was presented by the Association to Miss Electra Healy.

8. Officers elected to serve in 1961 were:

President .....Dr. Frank D. Costenbader
Washington, D. C.
Vice-President ..... Dr. John Henderson
Ann Arbor, Michigan
Secretary-Treasurer Dr. Edmond L. Cooper
Detroit, Michigan

The American Orthoptic Council is grateful to the American Academy of Ophthalmology and Otolaryngology for its continued interest and support.

Your representatives respectfully recommend:

1. That the American Academy of Ophthalmology and Otolaryngology continue its sponsorship of the American Orthoptic Council and that it appoint Dr. Marshall Parks of Washington, D. C., for a term of three years beginning January 1, 1962.

2. That the American Academy of Ophthalmology and Otolaryngology support the American Orthoptic Council in the amount of $200.00 for the year 1962.

REPORT ON AMERICAN STANDARDS ASSOCIATION COMMITTEE ON BIOACOUSTICS S3

EDMUND P. FOWLER, JR.
Academy Representative

There were three meetings of the ASA Sectional Committee on Bioacoustics S3, each in association with the American Acoustical Society. There were also two meetings of the International Standards Organization since the report of your representative last October, the most important being in Helsinki. ASA members present who are also members of the AAOO were Dr. Aram Glorig and Dr. Hallowell Davis.

The S3-W-35 writing group on Audiometers made further but very minor changes in Version 7 of proposed Specifications for Audiometers. Essentially this is ready for publication except for two items: (1) the International Standards Organization zero reference level for Audiometers, and (2) the standardization of the speech material to be used with speech audiometers.

The first of these items was to be settled in Helsinki, but although it is known that essential agreement has been informally reached by all parties concerned, there was no action taken in Helsinki. This is most unfortunate. The second item is a new one and has been discussed at length at two meetings without issue of formal action. It was decided to limit the standard to mechanical and electrical correlations between speech records and audiometers, rather than to specify the speech material to be used.

The committees on (1) Loudness Computation S3/33, (2) Calculation of the Articulation Index S3.5, (3) Coupler Calibration of Earphones S3-1-37 and (4) Criteria for Community Noise S3-X-20 were not yet ready for final report.

Dr. Goodfriend reported for the Subcommittee for Room Noise S3-X-34 that "the setting of room noise criteria by standard does not appear capable of general coverage. A standard in this area would be an invitation to lawsuits."

Review of progress in International Standards Organization:

Approved 29-1 (Central Office) 2 draft amendments and additions to publication 94 Recommendations for Magnetic Tape Recording and Reproducing Systems: Dimensions and Characteristics.

Approved 29-1 (Central Office) 3 draft amendments and additions to publication 98 Recommendations for Lateral-cut Commercial and Transcriptions Disk Recordings.

Approved 43 (Secretariat-113) 200 draft ISO Recommendations 402 Preferred Frequencies for Acoustical Measurements. This recommendation is essentially identical with American Standard S1.6 1960.

Approved 43 (Secretariat-118) 206 draft ISO recommendation 419 Methods of Measurement of Noise Emitted by Vehicles.

REPORT ON AMERICAN STANDARDS ASSOCIATION, COMMITTEE ON STANDARDIZATION OF OPHTHALMIC LENSES

CARL J. RUDOLPH
Academy Representative

The 1961 meeting of the Z80 Committee (Lens Standards) was held in the American Standards Association's offices, New York City, May 24. The organizations represented were as follows:

American Academy of Ophthalmology and Otolaryngology, Arthur Linksz, Carl J. Rudolph
American Academy of Optometry, Glenn Fry
American Committee on Optics and Visual Physiology, Carl J. Rudolph
American Optometric Association, Glenn Fry
American Standards Association, (Chairman pro-tem) George Harden, D. H. Hoffman, J. W. McNair, M. A. Pisciotta,
Guild of Prescription Opticians of America, J. A. Miller, A. E. Oelschlager
National Institute of Neurological Diseases and Blindness, H. T. Dalmat
National Society for the Prevention of Blindness, J. E. O'Neil
Optical Manufacturers Association, R. E. Allen, C. F. Oddy, W. A. Richardson, E. Swart
Optical Wholesalers National Association, R. L. Heilman
United States Dept. of Army, Austin Lowrey, Sr., Kenneth Somers
United States Dept. of Navy, Aldo Bartolomei
U. S. National Bureau of Standards, F. E. Washer
Veterans Administration, E. E. Murphy

Inasmuch as the Optical Manufacturers Association (O.M.A.), because of some disagreement in their membership, was not certain whether they wished to continue as sponsor of the organization, I asked for a vote to determine the solidarity of organizations present in reaffirming our objective in consummating a National Standardization of Ophthalmic Lenses. The vote was unanimous in favor of so doing.

The National Society for the Prevention of Blindness and the Optical Society of America, among others, volunteered to accept sponsorship of the Z80 (Lens Standards) Committee. At this juncture, the Optical Manufacturers Association requested that they be continued as sponsor.

The O.M.A. originally had agreed to buy lenses on the open market and check them for quality, by this media policing their own constituents at the manufacturers' level, providing they were again checked at the dispensing level. Obviously this was only fair, as the best of lenses could be compromised at the optical laboratory or dispensing level. Checking at the grass roots level appeared to be an unsurmountable problem, and it was because of this that the O.M.A. lost enthusiasm regarding sponsorship.

In order to meet ophthalmology's obligation in a program of this type, I was fortunate in obtaining the facilities of Indiana University Department of Ophthalmology. Dr. Fred Wilson, Chairman of the Department, has agreed to screen spectacle lenses from ophthalmological sources for quality. Dr. Wilson's interest in the quality of lenses provided patients was in itself encouragement to seek his aid. The central location of the University geographically (Indianapolis) should favor this location. If the request for this service should exceed our expectation, other universities will be invited to participate in the program, dependent upon the areas in which the need factor is greatest.

Dr. Glenn Fry of Ohio State University and Dr. Henry Hofstetter of Indiana University have agreed to perform this service for optometry.

The requirements of a first quality lens (other than corrected) are as follows:

AMERICAN STANDARDS REQUIREMENTS for *Manufacture of First Quality Glass Ophthalmic Lenses Other Than Corrected Types*

SCOPE

These standards shall apply to glass ophthalmic lenses of the Other Than Corrected Types, as supplied by manufacturers in uncut and semi-finished form, white and tinted, single vision and multifocal. These standards *also* cover industrial thickness uncut lenses but do not apply to blended lenses.

GLOSSARY OF TERMS AND DEFINITIONS

Center of Rotation Distance—The distance along the optical axis of the lens from the

rear surface of the lens to the center of rotation of the eye.

Index of Refraction—The refractive index for the Sodium D line (589 millimicrons).

Intermediate—That area in a trifocal lens or blank which has a power between that of the reading and distance portions.

Major Blank—The basic lens blank to which segments may be added.

Meridian—A meridian *of a surface of a lens* is the intersection of *that* surface with a plane containing the optical axis.

Multifocal Lens—A lens *designed* to provide correction for two or more viewing distances.

One Piece Lens—A multifocal lens or blank fabricated from a single piece of glass.

Ophthalmic Crown — A soda-lime-silicate glass used in manufacturing spectacle lenses.

Plano Lens—A lens having zero back vertex power.

Plano Surface—A surface having zero surface power.

Principal Meridians—The meridians of a lens which are *respectively* parallel to *and* at right angles to the cylinder axis.

**Reciprocal Relative Dispersion*—Reciprocal relative dispersion is defined by the formula:

$$V = \frac{{}^{n}D-1}{{}^{n}F-{}^{n}C}$$

where V is the reciprocal relative dispersion,
${}^{n}D$ is the index of refraction for radiation of wavelength 589 millimicrons,
${}^{n}F$ is the index of refraction for radiation of wavelength 486 millimicrons, and
${}^{n}C$ is the index of refraction for radiation of wavelength 655 millimicrons.

Segment—A *specified* area of the lens having a different refractive power from the major portion.

Semi-Finished Lens—A lens blank *having only one side finished.*

Shadowgraph — An instrument employing a light source of a small diameter, which casts a shadow of certain lens defects onto a screen.

Single Vision Lens—A lens *designed* to provide correction for a single viewing distance.

Spherical Lens—A lens having the same power in all meridians.

Sphero-Cylinder Lens—A lens having different powers in the two principal meridians.

Surface Power—(To be determined by a special subcommittee to be appointed by the Chairman and cleared with all members by letter).

Uncut Lens—A lens which has been finished on both *sides* but not yet edged.

Vertex Power—The vertex power in diopters is the reciprocal of the focal length expressed in meters, when the focal length is measured from the lens vertex to the focal plane. The back vertex power is based on the distance between the back vertex and the back focal plane. The front vertex power is based on the distance between the front vertex and the front focal plane.

Wave—A curved swell or ridge, or one of a series of such, in a surface.

GENERAL REQUIREMENTS

I. Design Requirements—Single Vision and Multifocal Lenses

A. Other Than Corrected Types of lenses are those which fail to meet, completely, Design Requirements for Corrected Types as set forth under paragraph I of the specifications covering Corrected Types.

II. First Quality Uncut Single Vision Glass Lenses

A. *Thickness*—Center thickness, when measured on the optical axis, shall not vary by more than plus or minus 0.2 mm. from the manufacturer's standard center thickness.

B. *Power Tolerance*—Power shall be measured on a recognized standard lens measuring instrument, *such as a vertometer or lensometer that measures the vertex power,* along the optical axis of the lens. When so measured, power in all meridians of spherical lenses, and in each of the two principal meridians of sphero-cylinder lenses, shall not vary from marked power by more than the tolerances shown below. In addition, cylinder powers shall not depart from specifications by more than the tolerances applied to the maximum meridional power.

Power in Diopters	*Tolerance in Diopters*
Plano thru 6	±0.06
6.25 thru 10	±0.09

(Examples—For a 4.00 D lens with a +3.00 cylinder the following tolerances apply: The

* *Prism Diopter* and *Prism Power* have been deleted.

minimum power is +4.00 D and the tolerance is ±0.06D. The maximum power is +7.00 D and the tolerance is ±0.09 D. The cylinder power is +3.00 D and the tolerance is ±0.09D.

For a —6.00 D lens with a +4.00 D cylinder the tolerances are as follows: The minimum power is —2.00 D and the tolerance is ±0.06D. The maximum power is —6.00 D and the tolerance is ±0.06 D. The cylinder power is +4.00 D and the tolerance is ±0.06D.)

C. *Centering*—The prism power at the marked point should not exceed 1/6 prism diopter. The marked point should not be decentered from the geometrical center more than 2 mm. This marked point, together with the two co-linear points disposed equidistant from it, shall locate the cylinder axis line.

D. *Physical Quality and Appearance*—Lenses shall be inspected against a dark background in light from an open-shaded 40 watt incandescent daylight lamp, for glass defects, such as bubbles and inclusions, and for surface defects such as scratches, pits, fracture, gray, etc. Under such conditions of illumination, lenses shall be visually free from these named defects.

Lenses shall also be inspected for localized refractive errors due to waves, striae, etc., using the shadowgraph principle of illumination. If any such defects are located, *they* shall be examined with a standard lens measuring instrument, *such as the vertometer or lensometer, and auxiliary prisms shall be used to eliminate the effects of a decentered optical system.* The lens is passable if no deterioration in image quality is found, *as the lens is slowly moved across a localized area.* Chips are passable if they are within 3 mm. of the lens edge.

III. First Quality Semi-Finished Single Vision Lenses

A. *Glass Index*—Unless otherwise specified by the manufacturer, glass shall be ophthalmic crown and index of refraction shall be 1.5230±.0015.

B. *Surface Power*—Surface power shall not deviate from the manufacturer's specified value by more than the following:

Power in Diopters	*Tolerance in Diopters*
Plano thru 12	±0.03
12.25 and over	±0.06

C. *Physical Quality and Appearance*—The same standards shall apply as those given in paragraph II-D above. NOTE: The shadowgraph test shall not apply to the unfinished surface.

IV. First Quality Semi-Finished Multifocals

A. *Power of Additions*—The power of additions shall be as marked on the container within a tolerance of plus or minus 0.09 diopters.

The power of an addition is defined as the difference between the powers measured through the distance and segment portions of the blank when the segment side is placed against the stop of a recognized standard lens measuring instrument. The measurement through the distance portion must be made as far above the optical center of the distance portion as the measurement through the segment is below the optical center of the distance portion. The target images should be centered by the use of auxiliary prisms.

Addition for one piece lenses may also be defined as the difference between surface power of the distance and the segment curves, as measured with a dial gauge lens measure.

B. *Glass Index of Major Blank*—Unless otherwise specified by the manufacturer, the glass used in the major blank shall be ophthalmic crown and index of refraction shall be 1.5230 ±.0015.

C. *Surface Power*—The same standards shall apply as those given in paragraph III-B above.

D. *Physical Quality and Appearance*—The same standards shall apply as those given in paragraphs II-D and III-C above. NOTE: The shadowgraph test shall not apply to the unfinished surface.

The curves for the reading and distance portions of first quality one piece bifocals shall meet sharply, and both of these curves, immediately adjacent to the line, shall be free of surface irregularities.

E. *Geometry of Additions*—The following figures are tolerances to be applied to the nominal dimensions as established by the manufacturer:

	Singly	*Paired*
1. *Fused Multifocals*		
(a) *All Types*		
Maximum width	± ½ mm.	Within ½ mm.
(b) *Flat Top and Curved Top*		
Segment		
Vertical Dimension	± ½ mm.	"
Optical center to *top line of segment*	± ½ mm.	"
(c) *Trifocal Intermediate*		
Vertical Dimension	± ¼ mm.	Within ¼ mm.
2. *One-piece Multifocals*		
(a) *Bifocal Segments*		
Maximum width *and height*	± ½ mm.	
(b) *Trifocals*		
Reading Segment Diameter	± ½ mm.	
Intermediate Band	± ½ mm.	

TEST PROCEDURES

Method of Measuring Lens Power—These standards refer to the use of a "recognized standard lens measuring instrument such as Vertometer or Lensometer *which gives a measure of vertex power.*"

The following *general* rules apply:

1. Focus of eyepiece of the instrument according to manufacturer's instructions before attempting to read any lens power.

2. In reading the power of any lens, always come into the focus range from the minus side of the focus. That is, turn the top of the calibrated drum counter-clockwise toward the observer. Do not focus back and forth by small amounts on both sides of the best focus, as this procedure tends to stimulate accommodation and produce erroneous readings.

3. In all lens measurements, the lens surface *shall be* in complete contact with the conical lens stop and not tilted away from contact at any point.

4. For valid power readings, the target image shall be centered on the reticle. If necessary, auxiliary prisms shall be used to center the target.

5. If there is doubt about any reading, the human error shall be minimized by taking an average of five readings. After each reading is recorded on paper, the target shall be thrown out of focus in the same direction and refocused from the minus side of the drum.

6. The power of a single vision lens shall be obtained by placing the lens with the ocular *(posterior)* side toward the light source of the instrument. Bifocal addition power shall be obtained by placing the segment side of the bifocal toward the light source, and taking the difference between the distance and reading portion powers.

7. For spherical lenses, all *elements* of the target shall be in focus simultaneously.

8. For sphero-cylinder lenses, one set of target *element(s)* shall be focused by simultaneous settings of the power and cylinder axis drums, until the *element(s)* are sharp and continuous. Then, without moving the axis drum, the target *element(s)* at right angles to the first set shall be focused. The drum reading for each set of *element(s)* shall be recorded, and the difference between the two readings is the cylinder power in diopters. If the second reading was reached by rotating the top of the drum toward the observer (counter-clockwise) the cylinder power is written as plus; if the drum must be rotated away from the observer (clockwise) to obtain the focus for the second set of *element(s)* the cylinder power is written as minus.

Method of Measuring Surface Power

The surface power shall be measured with a *suitable instrument* such as a lens measure, lens clock or Geneva gauge. This instrument is a spherometer which measures the vertex depth or sagitta of a lens surface and converts this value to a *dioptric* equivalent based on *an assumed* index of refraction. The most commonly used type consists of *three pins,* two fixed and one movable, mounted in a straight line.

The three pins must be placed *in a plane* perpendicular to the surface being measured to obtain accurate readings. If the lens is rocked slightly around this perpendicular position, a small variation in dial reading will be discernible. The minimum value obtained by this method is the surface power of the arc between the outside pins.

For a sphero-cylinder lens the same procedure shall be followed for each of the two curves on the surface. The lens measure and the curve being measured must be perpendicular. The smaller reading indicates the base curve, while the larger reading, obtained at right angles to the base curve, represents the power of the cylinder curve. Due to the *effect of thickness,* the difference *of* the two readings *is not* the full amount of the cylinder power *when the toric surface is on the front side of the lens.*

Dial gauges are sensitive instruments and may lose accuracy with continued use. They should be frequently calibrated against established test curves to insure accurate readings over the entire range of the instrument.

Careless application of the gauge to the lens surface may harm the gauge and mar the lens surface. Gentle pressure is all that is needed. Heavy pressure may be enough to distort the surface in thin lenses and give inaccurate readings.

Geometry of Additions

Compliance with all the dimensional tolerances listed under Section IV F shall be determined by direct measurement of the dimensions under consideration.

Measurements are to be made by scaling. For the more precise requirements a draftsman-type white celluloid scale with wood backing shall be used. Parallax error due to blank curvature must be avoided by appropriate shifts in eye position corresponding to the parts of the scale being used.

Tolerances on the dimensions of single blanks refer to the nominal dimensions for the product as specified by the manufacturer.

Shadowgraph

The detection of localized refractive errors by shadowgraph shall be accomplished by observing local variations in the intensity of the shadow cast by a lens when it is held between a small intense light source and a matte surface white screen. The apparatus used shall be equivalent to a 100-watt concentrated-arc lamp, having a brightness of 39 *candles per square mm.,* and a diameter of 0.072 inches. The lamp shall be located at a distance of three to five feet from the screen, with ambient illumination on the screen not to exceed 0.4 foot candles. The lens under test should be held at such a distance from the screen, and so angled with respect to the screen, that its shadow shows maximum sharpness of detail.

Measurement of Thickness

Thickness shall be measured at the marked center point of the lens using a standard lens caliper or similar suitable measuring instrument.

Centering

Centering shall be done on a recognized standard lens measuring *or centering* instrument in accordance with instructions furnished by the manufacturer of the instrument.

Specifications of corrected type (Z80.1) and uncut lenses (Z80.3) are not included in this report because of space limitations and the necessity to duplicate many areas.

Obviously all standards are minimal requirements, and in accordance with A.S.A. rules, all committees are required to meet at least once every five years so as to make improvements in quality commensurate with the advance of science.

I participated in the dedication ceremonies of the Univis Research and Unusual Lens Fabricating Center, Fort Lauderdale, Florida, June 2. In my address, I eulogized the optical manufacturers for updating their equipment and emphasized quality in multifocal lenses, where Univis excelled. It is in this area that provision is made for reading, and to keep abreast of advance of science in all fields, it is mandatory that one be well-read.

For the American Standards Association monthly magazine (February 1961 issue), I authored, by invitation, an article on standards. An appeal was made for the improvement of spectacle lenses and the urgency of a recognized National Standard. Attention was invited to the fact that the Pure Food and Drug Act has made the drug business honest and provided an unprecedented authority to a pro-

fessional prescription for medication. In our prescribing for glasses, we enjoy no such policing protection. It is difficult for a business man in our existing economy to respect professional ethics as we know and practice them in medicine.

REPORT ON NATIONAL COMMITTEE FOR RESEARCH IN OPHTHALMOLOGY AND BLINDNESS

BERNARD BECKER
A. EDWARD MAUMENEE
Academy Representatives

The National Committee for Research in Ophthalmology and Blindness has continued its chief function as a forum for lay and medical groups to exchange views in this field. It has provided advice to individuals and groups seeking support and has publicized research in these areas. With the generous support of the American Academy of Ophthalmology and Otolaryngology it has published a monthly newsletter with information concerning research grant and training support and general principles underlying this support. Many of the different viewpoints of representatives to the Committee have been reconciled as the purposes of the various organizations became better known. Representatives to the Committee have attended meetings at their own expense.

On October 7 the Committee sponsored a symposium on the support of research in ophthalmology and blindness at the Palmer House.

The previous financial support of the American Academy of Ophthalmology and Otolaryngology is gratefully acknowledged. The functions of the Committee may be continued for the following year without further financial support of the Academy, and it is recommended that there be no appropriation this year.

REPORT ON THE NATIONAL CONGRESS OF PARENTS AND TEACHERS HEALTH ADVISORY COMMITTEE

FRANK D. COSTENBADER
Academy Representative

I have received no notice for the past two years of any meetings of the Health Advisory Committee of the National Congress of Parents and Teachers, and so have no report to make to the Academy Council. I have presumed that the National Congress of Parents and Teachers have been notified of my appointment, and thus assume that no meetings have taken place.

American Academy of Ophthalmology and Otolaryngology

Convention Attendance, October 8-13, 1961

STATE	MEMBERSHIP AS OF 2-1-61	FELLOWS	GUESTS	RESIDENTS	CANDIDATES	ORTHOPTIC TECHNICIANS	TOTAL
Alabama	70	23	4	5	—	1	33
Alaska	4	1	1	—	—	—	2
Arizona	43	13	6	—	—	1	20
Arkansas	29	7	3	1	1	—	12
California	792	202	50	16	6	8	282
Colorado	101	43	14	3	2	2	64
Connecticut	114	34	4	2	4	—	44
Delaware	14	6	1	—	—	2	9
Dist. of Columbia	90	32	12	7	3	5	59
Florida	207	73	21	10	2	5	111
Georgia	82	26	13	3	2	5	49
Hawaii	23	9	—	—	—	—	9
Idaho	17	5	2	1	—	—	8
Illinois	392	312	250	107	10	8	687
Indiana	134	94	46	11	2	4	157
Iowa	88	49	19	21	—	3	92
Kansas	63	23	9	4	—	—	36
Kentucky	76	42	18	3	—	—	63
Louisiana	98	50	12	10	1	1	74
Maine	34	13	1	—	—	—	14
Maryland	99	38	31	13	3	3	88
Massachusetts	228	64	20	9	2	2	97
Michigan	237	150	87	49	7	14	307
Minnesota	145	74	14	12	2	2	104
Mississippi	40	19	10	1	—	1	31
Missouri	171	82	25	31	1	7	146
Montana	24	10	3	—	—	1	14
Nebraska	48	28	9	1	1	2	41
Nevada	13	4	—	—	—	—	4
New Hampshire	19	4	3	—	—	—	7
New Jersey	228	73	14	2	2	4	95
New Mexico	19	8	—	—	—	—	8
New York	948	325	95	44	7	22	493
North Carolina	85	27	14	8	4	1	54
North Dakota	21	12	3	—	—	1	16
Ohio	343	186	85	18	4	14	307
Oklahoma	50	23	5	4	—	2	34
Oregon	74	18	8	—	—	2	28
Pennsylvania	513	199	63	25	4	6	297
Rhode Island	26	5	4	—	—	—	9
South Carolina	48	18	5	1	—	1	25
South Dakota	13	7	1	—	—	—	8
Tennessee	98	53	20	9	1	1	84
Texas	309	123	25	18	6	5	177
Utah	41	14	1	—	1	—	16
Vermont	11	3	1	1	—	—	5
Virginia	103	35	11	9	2	—	57
Washington	107	33	8	1	1	—	43
West Virginia	47	20	6	—	—	—	26
Wisconsin	123	87	38	19	1	7	152
Wyoming	11	4	3	—	—	—	7
U. S. Territories	27	13	6	2	1	—	22
Canada	230	88	57	9	4	2	160
Foreign	78	9	61	—	—	—	70
Totals	7048	2913	1222	490	87	145	4857
Ladies							1188
Technical Exhibitors							921
GRAND TOTAL							6966

PAST OFFICERS OF THE ACADEMY

Date	President	First Vice-President	Treasurer	Secretary	Meeting Place
1896—	Adolph Alt St. Louis, Mo.	W. C. Pipino Des Moines, Iowa	W. L. Dayton Lincoln, Neb.	Hal Foster Kansas City, Mo.	Kansas City, Mo.
1897—	Adolph Alt St. Louis, Mo.	W. C. Pipino Des Moines, Iowa	W. L. Dayton Lincoln, Neb.	Hal Foster Kansas City, Mo.	St. Louis
1898—	B. E. Fryer Kansas City, Mo.	J. E. Colburn Chicago, Ill.	W. L. Dayton Lincoln, Neb.	Hal Foster Kansas City, Mo.	Chicago
1899—	J. E. Colburn Chicago, Ill.	W. Scheppegrell St. Louis, Mo.	W. L. Dayton Lincoln, Neb.	Thomas A. Woodruff Chicago, Ill.	New Orleans
1900—	W. Scheppegrell St. Louis, Mo.	M. A. Goldstein St. Louis, Mo.	W. L. Dayton Lincoln, Neb.	Fayette C. Ewing St. Louis, Mo.	St. Louis
1901—	M. A. Goldstein St. Louis, Mo.	H. W. Wurdemann Milwaukee, Wis.	W. L. Dayton Lincoln, Neb.	W. L. Ballenger Chicago, Ill.	Cincinnati
1902—	C. R. Holmes Cincinnati, Ohio	W. L. Dayton Lincoln, Neb.	Otto Stein Chicago, Ill.	W. L. Ballenger Chicago, Ill.	Chicago
1903—	W. L. Ballenger Chicago, Ill.	C. J. Stillson Indianapolis, Ind.	Otto Stein Chicago, Ill.	Derrick Vail Cincinnati, Ohio	Indianapolis
1904—	Edward Jackson Denver, Colo.	Dudley Reynolds Louisville, Ky.	Otto Stein Chicago, Ill.	Derrick Vail Cincinnati, Ohio	Denver
1905—	Hanau Loeb St. Louis, Mo.	Derrick Vail Cincinnati, Ohio	Otto Stein Chicago, Ill.	George F. Suker Chicago, Ill.	Buffalo
1906—	Casey Wood Chicago, Ill.	J. A. Stucky Lexington, Ky.	Otto Stein Chicago, Ill.	George F. Suker Chicago, Ill.	St. Clair, Mich.

PAST OFFICERS OF THE ACADEMY

Date President	First Vice-President	Treasurer	Secretary	Meeting Place
1907—J. A. Stucky Lexington, Ky.	R. A. Reeve Toronto, Canada	Otto Stein Chicago, Ill.	George F. Suker Chicago, Ill.	Louisville
1908—Derrick Vail Cincinnati, Ohio	Joseph Beck Chicago, Ill.	Otto Stein Chicago, Ill.	George F. Suker Chicago, Ill.	Cleveland
1909—Otto Stein Chicago, Ill.	Percy Fridenberg New York, N. Y.	S. H. Large Cleveland, Ohio	George F. Suker Chicago, Ill.	New York
1910—Wendell Reber Philadelphia, Pa.	L. B. Lockhard Denver, Colo.	S. H. Large Cleveland, Ohio	George F. Suker Chicago, Ill.	Cincinnati
1911—J. J. Kyle Indianapolis, Ind.	F. Parke Lewis Buffalo, N. Y.	S. H. Large Cleveland, Ohio	George F. Suker Chicago, Ill.	Indianapolis
1912—George F. Suker Chicago, Ill.	J. W. Murphy Cincinnati, Ohio	S. H. Large Cleveland, Ohio	L. M. Francis Buffalo, N. Y.	Niagara Falls, Ont.
1913—J. W. Murphy Cincinnati, Ohio	J. O. McReynolds Dallas, Texas	S. H. Large Cleveland, Ohio	L. M. Francis Buffalo, N. Y.	Chattanooga
1914—J. M. Ray Louisville, Ky.	J. M. Ingersoll Cleveland, Ohio	S. H. Large Cleveland, Ohio	L. M. Francis Buffalo, N. Y.	Boston
1915—Joseph Beck Chicago, Ill.	Robert S. Lamb Washington, D. C.	S. H. Large Cleveland, Ohio	L. M. Francis Buffalo, N. Y.	Chicago
1916—J. E. Brown Columbus, Ohio	T. E. Carmody Denver, Colo.	S. H. Large Cleveland, Ohio	L. M. Francis Buffalo, N. Y.	Memphis
1917—W. L. Dayton Lincoln, Neb.	Edward Stieren Pittsburgh, Pa.	S. H. Large Cleveland, Ohio	L. M. Francis Buffalo, N. Y.	Pittsburgh
1918—Allen Greenwood Boston, Mass.	Virginius Dabney Washington, D. C.	S. H. Large Cleveland, Ohio	L. M. Francis Buffalo, N. Y.	Denver

PAST OFFICERS OF THE ACADEMY

Date	President	First Vice-President	Treasurer	Secretary	Meeting Place
1919—	J. M. Ingersoll Cleveland, Ohio	Melville M. Black Denver, Colo.	S. H. Large Cleveland, Ohio	Luther C. Peter Philadelphia	Cleveland
1920—	L. M. Francis Buffalo, N. Y.	Hal Foster Kansas City, Mo.	S. H. Large Cleveland, Ohio	Luther C. Peter Philadelphia	Kansas City, Mo.
1921—	Emil Mayer New York, N. Y.	John R. Newcomb Indianapolis, Ind.	S. H. Large Cleveland, Ohio	Luther C. Peter Philadelphia	Philadelphia
1922—	Walter R. Parker Detroit, Mich.	Ross H. Skillern Philadelphia, Pa.	S. H. Large Cleveland, Ohio	Luther C. Peter Philadelphia	Minneapolis and St. Paul
1923—	T. E. Carmody Denver, Colo.	Hunter H. McGuire Winchester, Va.	S. H. Large Cleveland, Ohio	Luther C. Peter Philadelphia	Washington, D. C.
1924—	W. B. Lancaster Boston, Mass.	William P. Wherry Omaha, Neb.	S. H. Large Cleveland, Ohio	Luther C. Peter Philadelphia	Montreal
1925—	Horace Newhart Minneapolis, Minn.	John M. Wheeler New York, N. Y.	S. H. Large Cleveland, Ohio	Luther C. Peter Philadelphia	Chicago
1926—	E. C. Ellett Memphis, Tenn.	Austin A. Hayden Chicago, Ill.	S. H. Large Cleveland, Ohio	Luther C. Peter Philadelphia	Colorado Springs
1927—	Ross Hall Skillern Philadelphia, Pa.	H. W. Woodruff Joliet, Ill.	S. H. Large Cleveland, Ohio	William P. Wherry Omaha, Neb.	Detroit
1928—	Luther C. Peter Philadelphia, Pa.	Frank L. Dennis Colorado Springs, Colo.	S. H. Large Cleveland, Ohio	William P. Wherry Omaha, Neb.	St. Louis
1929—	Harris P. Mosher Boston, Mass.	Frank E. Burch St. Paul, Minn.	S. H. Large Cleveland, Ohio	William P. Wherry Omaha, Neb.	Atlantic City
1930—	William H. Wilder Chicago, Ill.	Frank R. Spencer Boulder, Colo.	S. H. Large Cleveland, Ohio	William P. Wherry Omaha, Neb.	Chicago

PAST OFFICERS OF THE ACADEMY

Date	President	First Vice-President	Ex. Sec'y-Treas.	Comptroller	Meeting Place
1931	John F. Barnhill Miami Beach, Fla.	Meyer Wiener Coronado, Calif.	William P. Wherry Omaha, Neb.	S. H. Large Cleveland, Ohio	French Lick, Ind.
1932	S. Hanford McKee Montreal, Canada	Gordon B. New Rochester, Minn.	William P. Wherry Omaha, Neb.	S. H. Large Cleveland, Ohio	Montreal
1933	Burt R. Shurly Detroit, Mich.	Nelson Miles Black Miami, Fla.	William P. Wherry Omaha, Neb.	S. H. Large Cleveland, Ohio	Boston
1934	John M. Wheeler New York, N. Y.	LeRoy A. Schall Boston, Mass.	William P. Wherry Omaha, Neb.	S. H. Large Cleveland, Ohio	Chicago
1935	Wells P. Eagleton Newark, N. J.	W. Thornwall Davis Washington, D. C.	William P. Wherry Omaha, Neb.	S. H. Large Cleveland, Ohio	Cincinnati
1936	Frank E. Burch St. Paul, Minn.	Gordon F. Harkness Davenport, Iowa	William P. Wherry Omaha, Neb.	S. H. Large Cleveland, Ohio	New York
1937	Lee W. Dean St. Louis, Mo.	Bernard Samuels New York, N. Y.	William P. Wherry Omaha, Neb.	S. H. Large Cleveland, Ohio	Chicago
1938	Harry S. Gradle Chicago, Ill.	E. M. Seydell Wichita, Kan.	William P. Wherry Omaha, Neb.	S. H. Large Cleveland, Ohio	Washington, D. C.
1939	George M. Coates Philadelphia, Pa.	William W. Pearson Des Moines, Iowa	William P. Wherry Omaha, Neb.	S. H. Large Cleveland, Ohio	Chicago
1940	Frank E. Brawley Chicago, Ill.	Arthur W. Proetz St. Louis, Mo.	William P. Wherry Omaha, Neb.	S. H. Large Cleveland, Ohio	Cleveland
1941	Frank R. Spencer Boulder, Colo.	Everett L. Goar Houston, Texas	William P. Wherry Omaha, Neb.	S. H. Large Cleveland, Ohio	Chicago
1942	Ralph I. Lloyd Brooklyn, N. Y.	Walter H. Theobald Chicago, Ill.	William L. Benedict Rochester, Minn.	S. H. Large Cleveland, Ohio	Chicago
1943	James A. Babbitt Philadelphia, Pa.	Sanford R. Gifford Chicago, Ill.	William L. Benedict Rochester, Minn.	S. H. Large Cleveland, Ohio	Chicago

PAST OFFICERS OF THE ACADEMY

Date	President	First Vice-President	Ex. Sec'y-Treas.	Meeting Place
1944—	Lawrence T. Post St. Louis, Mo.	C. Stewart Nash Rochester, N. Y.	William L. Benedict Rochester, Minn.	Chicago
1945—	Gordon B. New Rochester, Minn.	Edmund B. Spaeth Philadelphia, Pa.	William L. Benedict Rochester, Minn.	Meeting Cancelled
1946—	Gordon B. New Rochester, Minn.	Edmund B. Spaeth Philadelphia, Pa.	William L. Benedict Rochester, Minn.	Chicago
1947—	Alan C. Woods Baltimore, Md.	Arthur C. Jones Boise, Idaho	William L. Benedict Rochester, Minn.	Chicago
1948—	Carl H. McCaskey Indianapolis, Ind.	Ralph O. Rychener Memphis, Tenn.	William L. Benedict Rochester, Minn.	Chicago
1949—	Conrad Berens New York, N. Y.	Fred W. Dixon Cleveland, Ohio	William L. Benedict Rochester, Minn.	Chicago
1950—	J. Mackenzie Brown Los Angeles, Calif.	Edwin B. Dunphy Boston, Mass.	William L. Benedict Rochester, Minn.	Chicago
1951—	Derrick Vail Chicago, Ill.	Francis E. LeJeune New Orleans, La.	William L. Benedict Rochester, Minn.	Chicago
1952—	James Milton Robb Detroit, Mich.	Georgiana Dvorak Theobald Oak Park, Ill.	William L. Benedict Rochester, Minn.	Chicago
1953—	Frederick C. Cordes San Francisco, Calif.	Thomas C. Galloway Evanston, Ill.	William L. Benedict Rochester. Minn.	Chicago
1954—	Walter H. Theobald Chicago, Ill.	Francis Heed Adler Philadelphia, Pa.	William L. Benedict Rochester, Minn.	New York

PAST OFFICERS OF THE ACADEMY

Date	President	First Vice-President	Ex. Sec'y-Treas.	Meeting Place
1955—	Algernon B. Reese New York, N. Y.	Philip E. Meltzer Boston, Mass.	William L. Benedict Rochester, Minn.	Chicago
1956—	A. C. Furstenberg Ann Arbor, Mich.	M. Hayward Post St. Louis, Mo.	William L. Benedict Rochester, Minn.	Chicago
1957—	Erling W. Hansen Minneapolis, Minn.	Louis H. Clerf St. Petersburg, Fla.	William L. Benedict Rochester, Minn.	Chicago
1958—	LeRoy A. Schall Boston, Mass.	F. Bruce Fralick Ann Arbor, Mich.	William L. Benedict Rochester, Minn.	Chicago
1959—	John H. Dunnington New York, N. Y.	Gordon D. Hoople Syracuse, N. Y.	William L. Benedict Rochester, Minn.	Chicago
1960—	Dean M. Lierle Iowa City, Iowa	Harold G. Scheie Philadelphia, Pa.	William L. Benedict Rochester, Minn.	Chicago
1961—	Dohrmann K. Pischel San Francisco, Calif	Frederick T. Hill Waterville, Maine	William L. Benedict Rochester, Minn.	Chicago

NEWS AND ANNOUNCEMENTS

U.S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE

Three outstanding specialists in the field of neurology have been appointed to the National Advisory Neurological Diseases and Blindness Council for four-year periods. They are Dr. Clark H. Millikan, consultant in neurology, The Mayo Clinic, Rochester, Minnesota, and professor of neurology, University of Minnesota Graduate School; Dr. Raymond DeLacy Adams, Bullard professor of neuropathology, Harvard University Medical School, Boston, and chief of neurological service at Massachusetts General Hospital in that city; and Dr. Paul C. Bucy, professor of surgery, Northwestern University Medical School, Chicago, and on the staff at Chicago Wesley Memorial Hospital.

Doctor Millikan, a native of Freeport, Illinois, is a clinical neurologist who played a major role in a report entitled "A Classification and Outline of Cerebrovascular Diseases," which has served as the basis for testing of therapy and for evaluation of stroke and related disorders. He received his Medical Degree at the University of Kansas, was a resident in medicine at St. Luke's Hospital, Cleveland, Ohio, and a resident in neurology at the University of Iowa Hospital.

Doctor Adams, who received his medical degree from Duke University and spent his medical residency there, later was a neurology resident at Massachusetts General Hospital. His special interest is in the neuropathology of infancy and of old age.

Doctor Bucy, a native of Hubbard, Iowa, is an internationally known brain surgeon with broad experience in the general field of neurological research. He received his medical degree from Iowa State University, interned at the Henry Ford Hospital, Detroit and spent his residency in neurosurgery at the University of Chicago.

Each of the three specialists is the author of numerous publications dealing with the nervous system.

The 12-member council to which they have just been appointed serves in an advisory capacity to the Surgeon General and the National Institute of Neurological Diseases and Blindness in the awarding of grants to medical schools, Universities, hospitals, and other nonprofit institutions for research in the field of neurological and sensory disorders.

The National Institute of Neurological Diseases and Blindness is one of seven national research institutes which together make up the National Institute of Health. The National Institutes of Health comprise the research arm of the United States Public Health Service.

FRIEDENWALD AWARD

Dr. Albert M. Potts, Professor of Ophthalmology in the Department of Surgery and Director of Research in Ophthalmology at The University of Chicago, has been given the Friedenwald Award of the Association for Research in Ophthalmology.

The award, a bronze plaque given for outstanding contributions to ophthalmic research, was presented to Doctor Potts at 8:00 p.m., Tuesday, December 5, at a dinner at the Statler Hotel, Detroit, during the association's annual meeting.

Doctor Potts is a biochemist as well as an ophthalmologist and has made significant research contributions in both fields. He is known for his work on the development of a television ophthalmoscope for teaching and diagnostic use. He is also known for important studies on drugs poisonous to the eye, on the mechanism by which the cornea and lens remain transparent, and on the electrical currents created when the eye reacts to light.

He is the fourth scientist to receive the Friedenwald Award. Given annually by the Association for Research in Ophthalmology since 1958, the award is named for the late Dr. Jonas Friedenwald, who was a research ophthalmologist on the faculty of Johns Hopkins University.

Doctor Potts holds an A.B. degree in chemistry from Johns Hopkins, a Ph.D.

in biochemistry from The University of Chicago, and an M.D. degree from Western Reserve University. He served on the faculty of Western Reserve from 1948 until he joined the Chicago faculty in 1959.

He is a member of the American Academy of Ophthalmology and Otolaryngology, and the American Chemical Society, as well as the Association for Research in Ophthalmology.

REQUEST FOR PAPERS

The Section on Ophthalmology and Otolaryngology of the Southern Medical Association announces that it will now accept papers to be considered for presentation before the next annual meeting at Miami Beach, Florida, November 12 to 15, 1962. Papers will be accepted for consideration for presentation until May 15, 1962.

For further information please contact the Secretary, Dr. Albert C. Esposito, Suite 1212, First Huntington National Bank Building, Huntington 1, West Virginia.

MIDWESTERN SECTION OF ASSOCIATION FOR RESEARCH IN OPHTHALMOLOGY

The Midwestern Section of the Association for Research in Ophthalmology will meet March 31 and April 1, 1962, at the Illini Union Building in Chicago.

The deadline for submission of titles of papers is February 1, 1962. The abstracts are not due until the time of presentation and should be filled out on the proper forms which will be supplied. For further information, please write Dr. T. F. Schlaegel, Jr., 1100 West Michigan Street, Indianapolis 7, Indiana.

CHILDREN'S HOSPITAL OF WASHINGTON, D. C.

The Department of Ophthalmology of the Children's Hospital of Washington, D. C., offers a six-months' traineeship in pediatric ophthalmology to graduates of recognized residencies in ophthalmology. The training consists of inpatient and outpatient hospital experience, exclusively with children, pediatric ophthalmic pathology at the Armed Forces Institute of Pathology, and auditing and assisting to a limited extent in private offices.

Those interested should direct inquiries to Dr. Frank D. Costenbader, 1605 Twenty-second Street, N. W., Washington 8, D.C.

UNIVERSITY OF TORONTO

The Faculty of Medicine, University of Toronto, will hold a refresher course in Eye Surgery, April 9 to 11, 1962. The instruction will consist of lectures, operative sessions and a special symposium on glaucoma surgery.

Dr. Arthur Gerard DeVoe, Institute of Ophthalmology, New York, and Mr. P.D. Trevor-Roper, Westminster Hospital, London, England, will be guest surgeons. The staff of the Department of Ophthalmology will contribute extensively.

The course will be limited to fifty members and is open to eye, ear, nose and throat specialists. Application should be made to the Director, Division of Postgraduate Medical Education, Faculty of Medicine, University of Toronto, Toronto 5, Canada, before March 9, 1962.

On April 7, there be a departmental research meeting and Dr. Endre A. Balazs, The Retina Foundation, Boston, will be guest speaker. Members of the Eye Surgery Course are cordially invited to attend.

COURSE IN OPHTHALMIC PLASTIC SURGERY

A three-week intensive course in Ophthalmic Plastic Surgery will be conducted in New York, March 12 to 30, 1962, inclusive.

The course will consist of lectures, sessions in doctors' offices, preliminary and

follow up cases that are operated on during the time of the course, moving picture demonstrations of various ophthalmic plastic procedures, observation and assistance at operating table on actual surgical cases, cadaver work, lectures and demonstrations, ancillary subjects such as photography, pathology and x-ray radiation.

The fee for this course is $250.00. Anyone interested may contact the Registrar of the Institute of Ophthalmology of the Americas, New York Eye and Ear Infirmary or any of the following: Dr. Wendell Hughes, Hempstead, L. I. Dr. Byron C. Smith, New York, or Dr. J. Gordon Cole, New York.

NEW YORK UNIVERSITY COURSES IN 1962

The New York University Postgraduate Medical School, Department of Ophthalmology, offers the following courses:

Ophthalmic Plastic Surgery (Feb. 26 through March 2). Part-time course, from 2:00 to 5:00 p.m. under the direction of Dr. Sidney A. Fox. Covers essentials of ophthalmic plastic surgery for the practicing ophthalmologist. Tuition: $90.00.

Motor Anomalies of the Eye:

Part I: March 5 through 10. Tuition: $115.00.

Part II: March 12 through 16. Tuition: $100.00.

Full-time course given in two parts, under the direction of Dr. Harold W. Brown. Case demonstrations follow the lectures. Part II is a continuation of first course.

Surgery of the Eye (March 19 through 24). Full-time course, under the direction of Dr. Rudolf Aebli. Consists of lectures on cataract surgery, glaucoma surgery, ocular muscle surgery, etc. Practical work on technique on the cadaver. Maximum class, 11. Tuition: $140.00.

Ophthalmoscopy (April 23 through 27). Part-time course from 9:00 a.m. to 12:00 noon, under the direction of Dr. George N. Wise. Study of normal fundus, congenital anomalies, diseases of the vitreous, retina, choroid, etc. Illustrations with kodachrome slides and case presentation. Tuition: $60.

Histopathology (April 23 through 27). Part-time course from 1:00 to 4:00 p.m., under the direction of Dr. A. Marvin Gillman. Lectures, demonstrations and microscopic study of exemplary pathologic material covering a variety of subjects. Tuition: $100.00.

For additional information, write to Associate Dean, New York University Medical Center, 550 First Avenue, New York 16, N. Y.

MANHATTAN EYE, EAR AND THROAT HOSPITAL

The First International Symposium of the Manhattan Eye, Ear and Throat Hospital on plastic and reconstructive surgery of the eye, eyelids and adnexa will be held May 21 to 25, 1962, in New York.

The program will consist of a series of lectures, discussions, televised surgical sessions, motion picture sessions and patient presentations. An internationally recognized faculty of more than 65 men from the fields of plastic surgery, ophthalmology and otolaryngology will present material. Four days will be devoted to the cornea, with emphasis on its relationship to the previously presented plastic surgery material. Papers will be presented in English, French and Spanish with simultaneous translation being provided for all participants. The didactic material presented and a summary of the discussions will be published following the meeting in book form and will be available to all registrants without charge.

Free papers will not be solicited. Presentation of surgical films pertinent to the subject will be invited, subject to approval of the program committee. In each of fourteen didactic sessions, a twenty-minute discussion period will be provided for questions and discussion. Discussion papers, not to exceed three minutes, will be accepted for this period, subject to the approval of the section chairman. Registration is limited to 500 participants. Registration fees: $100.00 (U.S.A. and Canada), $50 (other countries).

Please address inquiries to Professor Richard C. Troutman, Chairman, First International Symposium of the Manhattan Eye, Ear and Throat Hospital, 210 East 64th Street, New York 21, N. Y., U.S.A.

Note: During the week following the above meeting a course on plastic and reconstructive surgery of the face will be given under the direction of Professor John Marquis Converse and staff at the New York University Medical Center. Registration will be quite limited. Inquiries may be addressed to Professor Converse.

INSTITUTE OF OPHTHALMOLOGY OF THE AMERICAS

The Institute of Ophthalmology of the Americas of the New York Eye and Ear Infirmary announces that Dr. Joaquin Barraquer, Vice-President of the Instituto Barraquer, Barcelona, Spain, will deliver a series of five lectures on "Techniques in Ophthalmic Surgery" February 5 to 9, 1962. The lectures will be augmented by films and slides and time will be given for questions from the audience. Fee: $75.

For registration, please apply to Mrs. Tamar Weber, Registrar, Institute of Ophthalmology of the Americas, New York Eye and Ear Infirmary, 218 Second Avenue, New York 3, New York.

PAN AMERICAN ASSOCIATION OF OPHTHALMOLOGY INTERIM CONGRESS—LIMA, PERU

The interim session of the Pan American Congress of Ophthalmology will be held in Lima, Peru, from January 28 to February 3, 1962. The following subjects will be discussed: Diagnosis and Treatment of Glaucoma; Steroids in Ophthalmology; Diseases of Cornea, and Detachment of the Retina. In addition to the indicated subjects, free themes and short courses of lectures will be presented. For further information please write to Pan American Congress of Ophthalmology, General Secretary, P. O. Box 2546, Lima, Peru. For travel information and reservations, please write Mr. E. R. Brown, Harvey Travel Bureau, 2005 West Gray Street, Houston 19, Texas.

UNIVERSITY OF MICHIGAN MEDICAL CENTER

The annual Otorhinolaryngology and Ophthalmology conferences at The University of Michigan Medical Center, Ann Arbor, Michigan, will be held on April 19 through 25, 1962. The first three days will be under the direction of Dr. Walter P. Work and Staff of the Department of Otorhinolaryngology. The visiting participants will include:

Dr. William J. McNally, Montreal, Canada
Dr. Philip Meltzer, Boston, Massachusetts
Dr. Jerome A. Hilger, St. Paul, Minnesota
Dr. Joseph H. Ogura, St. Louis, Missouri
Dr. Aubrey G. Rawlins, San Francisco, California

The Ophthalmology conference will be held on April 23, 24 and 25. Dr. F. Bruce Fralick and Staff of the Department of Ophthalmology will conduct the sessions. The following named guest lecturers will participate:

Dr. Chester J. Black, Elmhurst, Illinois
Dr. John A. Dyer, Rochester, Minnesota
Dr. William H. Havener, Columbus, Ohio
Dr. Arthur H. Keeney, Louisville, Kentucky

Applications for information on enrollment may be addressed to the Department of Postgraduate Medicine, University Hospital, Ann Arbor, Michigan.

RESEARCH STUDY CLUB OF LOS ANGELES

The Research Study Club of Los Angeles will hold its Thirty-First Annual Mid-Winter Convention in Ophthalmology and Otolaryngology from January 22 through January 26, 1962. Registration will be on January 21 at the Statler Hilton Hotel, Los Angeles.

Individual presentations, motion pictures, round table luncheons, and panel discussions will be included in the program. Guest speakers will include four ophthalmologists and fourteen otolaryngologists. For further information please write to Norman Jesberg, M.D., Treasurer, 500 South Lucas Avenue, Los Angeles 17.

NEW YORK EYE AND EAR INFIRMARY

The Annual Spring Meeting of the Alumni Association of the New York Eye and Ear Infirmary will be held April 9 to 12, 1962.

On the EYE side, the meeting will be oriented towards Cataracts. Symposia will be offered on Preoperative Work-Up; Surgical Management, and Complications of Cataract Surgery. There will also be courses and a closed circuit demonstration of surgical procedures.

On the ENT side, there will be Symposia on Complications of Stapes Surgery, and Significance of a Mass in the Neck, as well as lectures and closed circuit television.

Additional information may be obtained by writing to the Secretary, Alumni Association, 218 Second Avenue, New York 3.

GILL MEMORIAL EYE, EAR AND THROAT HOSPITAL

The Gill Memorial Eye, Ear and Throat Hospital announces to the profession its Thirty-Fifth Annual Spring Congress in Ophthalmology and Otolaryngology and allied specialties from April 2 through 6, 1962. An excellent program has been arranged and there will be many guest speakers. For further information please write Superintendent, P. O. Box 1789, Roanoke, Virginia.

WEST VIRGINIA ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

The West Virginia Academy of Ophthalmology and Otolaryngology announces that its next regular meeting will be held at the Greenbrier Hotel, White Sulphur Springs, West Virginia, April 23 to 25, 1962.

Among the guest speakers will be Dr. Ramon Castroviejo, New York; Dr. Frank Costenbader, Washington, D. C.; Dr. Kelvin A. Kasper, Philadelphia; Dr. Frederick Guilford, Houston, and Mr. Philip Salvatori, New York.

The registration fee will be $25.00. For reservations contact the hotel, or for further information write the secretary, Dr. Worthy W. McKinney, 109 East Main Street, Beckley, West Virginia.

FLORIDA MIDWINTER SEMINAR

The Sixteenth Annual Florida Midwinter Seminar in Ophthalmology and Otolaryngology will be held January 29 through February 3, 1962, at the Americana Hotel, Miami Beach, Florida.

On January 29, 30 and 31, the lectures on ophthalmology will be presented by A. B. Reese, M.D., New York; Lorenz E. Zimmerman, Washington, D. C.; Byron Smith, M.D., New York; Donald M. Shafer, M.D., New York; and Albert E. Sloane, Boston.

On February 1, 2 and 3, the lectures on otolaryngology will be presented by Charles M. Norris, M.D., Philadelphia; G. O'Neil Proud, M.D., Kansas City; J. Ryan Chandler, M.D., Miami; Stanton A. Friedberg, M.D., Chicago; Col. Paul A. Campbell, M.D., Brooks Air Force Base, Texas, MC USAF.

For further information please write Kenneth Whitmer, M.D., 550 Brickell Avenue, Miami, Florida.

WILLS EYE HOSPITAL

The Fourteenth Annual Clinical Conference of the Staff and Society of Ex-Residents of Wills Eye Hospital will be held February 15 through 17, 1962. Registration will begin at 9:00 a.m. on Thursday and ward rounds will start at 9:15 a.m. The scientific program will open at 10:00 a.m. and will include television of surgical procedures during the afternoon. The scientific meeting of the Ophthalmological Section of the Philadelphia College of Physicians will be held Thursday evening, preceded by a dinner. Dr. Charles Schepens, director of the Retina Foundation, Boston, will be the guest speaker.

On Saturday morning the Arthur J. Bedell Lecture will be delivered by Dr. Frank Walsh, Professor of Ophthalmology, Johns Hopkins University, Baltimore. The Wills Eye Hospital Ex-Residents will have a dinner meeting Saturday evening.

EXAMINATION IN OTOLARYNGOLOGY

The American Board of Otolaryngology will conduct only one examination in 1962. This will be held at the Palmer House in Chicago, October 28 to November 1.

EXAMINATION IN OPHTHALMOLOGY

The American Board of Ophthalmology will conduct oral examinations in San Francisco, May 14 to 18, 1962, and in St. Louis, October 28 to November 1, 1962. The final date for application to 1963 written examination is July 1, 1962. The written examination will be held January 28, 1963.

For further information concerning the examinations, please write the secretary-treasurer, Merrill J. King, M.D., Box 236, Cape Cottage Branch, Portland, Maine.

KRESGE EYE INSTITUTE

On September 16, 1961, Eliott B. Hague, M.D., prominent ophthalmologist and bibliophile of Buffalo, New York, presented to Dr. Albert D. Ruedemann, Sr., his well-known collection of ophthalmological books comprising 1,000 items. The main body of the library consists of rare and historically important ophthalmological texts. The oldest and rarest book in the lot is a Bartisch printed in the late sixteenth century. The collection has been exhibited at many medical meetings, including the International Congress of Ophthalmology held in New York City in 1954, and it will form the nucleus of a valuable ophthalmological library to be housed at the Kresge Eye Institute, named in Dr. Ruedemann's honor and sponsored by Wayne State University College of Medicine and the residency programs at both Detroit Receiving Hospital and Harper Hospital, as well as members of the faculty of Wayne State University College of Medicine. Dr. Ruedemann is director of the Kresge Eye Institute and chief of the department of ophthalmology at both hospitals and chairman of the department at Wayne State.

EMORY UNIVERSITY SCHOOL OF MEDICINE POSTGRADUATE COURSE

The Department of Ophthalmology of Emory University School of Medicine presented a postgraduate course in Grady Memorial Hospital Auditorium, Atlanta, Georgia, November 30 and December 1, 1961. Members of the Faculty were Dr. Algernon B. Reese, New York; Dr. Charles L. Schepens, Boston, and Dr. Lorenz E. Zimmerman, Washington, D. C. Among the subjects discussed were ophthalmoscopy and other diagnostic methods of examination of the ocular fundus; clinical manifestations; differential diagnosis and pathologic anatomy of diseases of the vitreous, retina and uvea.

SUNGLASSES GO INTO THE "DEEP FREEZE"

Dr. Fred Jobe, Director of Ophthalmic Research at Bausch & Lomb, is traveling into one of the coldest, most barren regions of the earth to study the effects of sunglasses! This scientist is one of a group of technical and military personnel making the journey in connection with the current Antarctic expedition "Deep Freeze '62." This is the latest in a series of polar explorations, originating with Deep Freeze I in 1955, in which United States scientists and engineers are conducting research studies on weather, living conditions, etc.

Dr. Jobe has pointed out that during the so-called "summer months" in Antarctica (November through March) the sun shines almost continuously around the clock. The surface of the earth is covered by huge snow and ice fields, forming a gigantic reflective surface. Light coming through a completely overcast sky strikes the snow and is reflected back to the clouds, back to the snow, etc. This continual light "bouncing" produces a condition known as "whiteout." "The sky and surface seem to blend together in a solid wall of white, blotting out the horizon," the research director explained. "In absolute 'whiteout' there is a complete loss of depth perception and judgment of distance."

POSITIONS AVAILABLE

E.N.T. practice, McKeesport, Pennsylvania, available from estate of recent decedent. Revenues upward of $50,000.00 per annum. Contact Walter M. Newman, Esquire, 1905 Law & Finance Building, Pittsburgh 19, Pennsylvania. Telephone GRant 1-0580.

EXCELLENT OPPORTUNITY for E. E. N. T. specialist. Fully equipped office and established practice of recently deceased physician. Town with population of more than 163,000. For further information please write Mrs. Frank Ware, 902 Woodside, Flint 3, Michigan.

OPHTHALMOLOGIST wanted. Board-eligible. Southern Minnesota city of 25,000. Long established office in city with three colleges, good schools, many cultural and recreational advantages, good travel connections. For further information write to Dr. G. L. Loomis, 62 East Fourth Street, Winona, Minnesota.

WANTED — Texas-licensed OPHTHALMOLOGIST. Dynamic area. Excellent opportunity. For further information write to Dr. Arthur W. Stoolfire, 202 North Travis Street, Sherman, Texas.

NOTICE

WANTED: Two small frames for old Precision B & L trial sets. Please write Wendell L. Hughes, M.D., 131 Fulton Avenue, Hempstead, New York.

Listings of positions available should be sent to W. L. Benedict, M.D., 15 Second Street S. W., Rochester, Minn., by the fifth of the month preceding publication. They should include (1) type of physician wanted (ophthalmologist or otolaryngologist: diplomate, resident, etc.) (2) type of position to be filled; and (3) to whom to write for further information. Unless otherwise requested, listings will be published only once.

The Academy will handle no further correspondence beyond the listing and assume no responsibility. Neither does it endorse nor guarantee any of the published listings.

LISTING OF AUDIOMETERS

The following audiometers are recommended for listing by a subcommittee of the Committee on Conservation of Hearing, American Academy of Ophthalmology and Otolaryngology:

PURE TONE AUDIOMETERS

Beltone Model 10-C Model 15-C	Beltone Hearing Aid Company Audiometer Division 2900 West 36th Street Chicago 32, Illinois
Maico Model MA-5 Model H1-B for pure tones only	Maico Electronics Inc. Maico Building 21 North Third Street Minneapolis 1, Minnesota
Sonotone Model 91	Sonotone Corporation Elmsford, New York
Zenith ZA 200	Zenith Radio Corporation 6501 West Grand Avenue Chicago 35, Illinois

SPEECH AUDIOMETERS

Grayson-Stadler Model 162	Grayson-Stadler Co. West Concord, Massachusetts

SCREENING AUDIOMETERS

Ambco Otometer 600	Ambco Inc. 1222 W. Washington Blvd. Los Angeles 7, California

Each model number in the list as a rule indicates the most advanced model of that series. If less advanced instruments are for sale under similar model numbers, it is assumed that they will function as well or better than the more complicated model in a series.

Acceptance for listing means that the audiometer manufacturer has demonstrated the ability to produce one instrument that performs according to A.S.A. specification. It does not imply that any individual instrument will perform within the tolerances. It is obviously beyond the scope of the Listing Committee or the Referee Laboratories to provide production control for audiometer manufacturers and their customers; however, listing does indicate that the product of the manufacturer can come up to 1951 A.S.A. specifications, and it is up to the customer to carry on negotiation with the manufacturer if a particular instrument which he receives is faulty.

Abatron D-100 and Ambco Oto-chek 800 were removed from the above list at the request of the respective manufacturers.

BOOK REVIEWS

EXPERIMENTAL EYE RESEARCH (AN INTERNATIONAL JOURNAL)

The Academic Press, London and New York, has just released the first issue of a new international journal, Experimental Eye Research, of which Dr. Hugh Davson, University College, London, and Dr. Endre A. Balazs, Retina Foundation, Boston, are Chief Editors. They are assisted by an International Editorial Board consisting of Drs. Jin H. Kinoshita, Harvard Medical School, Boston; V. Everett Kinsey, Kresge Eye Institute, Detroit; David Maurice, Institute of Ophthalmology, University of London; Louise L. Sloan, Johns Hopkins University School of Medicine, Baltimore; and George K. Smelser, Columbia University College of Physicians and Surgeons, New York.

The new periodical will be available for the publication of the results of original research on the anatomy, physiology, biochemistry, and biophysics of the eye. Contributions on such subjects as the production and circulation of ocular fluids, the fine structure, biochemistry, biophysics and metabolism of eye tissues, the photochemical processes related to visual function, and the neuromuscular mechanisms in the control of eye movements will be preferred. Experimental Eye Research will be published quarterly and will contain approximately 400 pages per annum.

The following scientists have agreed to serve on the Advisory Board: Ernst Bárány, Uppsala Universitat; Bernard Becker, Washington University School of Medicine, Saint Louis; Hans Goldmann, Universitäts-Augenklinik, Bern; Ragnar Granit, Karolinska Institutet, Stockholm; Stephen W. Kuffler, Harvard Medical School, Boston; Lorrin A. Riggs, Brown University, Providence, Rhode Island; W. A. H. Rushton, Cambridge University; Phillips Thygeson, University of California, San Francisco Medical Center; Ludwig von Sallmann, National Institute of Neurological Diseases and Blindness, Bethesda, Maryland.

Manuscripts may be submitted to either of the Chief Editors. Papers from all parts of the world will be welcomed, the sole criteria for publication being that they be written in English and that their scientific content meet the high standards imposed by editorial policy. Fifty reprints of each paper will be supplied free of charge.

Subscription orders should be sent to Academic Press Inc. (London), Ltd., 17 Old Queen Street, London, S. W. 1. The rate for institutional subscribers to Volume 1, 1961/1962, is 115s.

AN ATLAS OF OPHTHALMIC SURGERY. By Conrad Berens, M.D., F.A.C.S., and John Harry King, Jr., M.D., F.A.C.S., drawings by Robert Bray Wingate, A.B., M.S. Philadelphia, Montreal, J. B. Lippincott Company, 1961. 623 pp. with index of subjects. $28.00.

For several years the authors of this Atlas of Ophthalmic Surgery have produced papers and monographs on ophthalmic surgery that have formed the groundwork of instruction and training of the subject in medical schools and hospitals throughout the world. Robert Bray Wingate was selected as the illustrator because of his extensive experience in ophthalmic art.

The format of this atlas, 11½ inches by 9 inches and 1½ inches thick, is typical of an atlas but there are as many

pages of text as of pictures. Each surgical procedure is briefly described, including indications, techniques, variations, substitutes and postoperative care. The original drawings are superb. A large part of the atlas is devoted to plastic surgery of the ocular adnexa, describing plastic repair of upper facial defects and abnormalities. Keratoplasty, cataract extraction, glaucoma, retinal detachment and ocular muscle surgical treatment are extensively detailed. It is truly a complete surgical atlas and a great contribution to the educational efforts of modern teaching.

W. L. B.

SYSTEM OF OPHTHALMOLOGY: VOL. II, THE ANATOMY OF THE VISUAL SYSTEM. By Sir Stewart Duke-Elder, G.C.V.O., F.R.S., and Kenneth C. Wybar, B.Sc., M.D., Ch.M., F.R.C.S. St. Louis, C. V. Mosby Company, 1961. Board. 874 pp., index and table of contents. 842 il. and 3 color plates. $30.00

This volume of Sir Stewart Duke-Elder's System of Ophthalmology forms a new edition of the section of anatomy in his "Text-Book of Ophthalmology." Beginning with a section on historical development which includes references and annotations from literature, drawings, documents, pictures and all sources of antiquity, he proceeds through 12 chapters to describe in detail the anatomy of all parts of the eye and ocular adnexa. Section IV is devoted to the Central Nervous Organization of Vision and, of course, includes some physiology of the motor and the sensory system and the autonomic system of the eye.

So completely has the author covered the subject of anatomy of the eye and the fundamental nervous system as it pertains to vision that the volume supplants all previous books on the subject, tying in the historical aspects with modern developments. One chapter deals with the foundations of ophthalmology, while the following eight chapters are devoted to diseases of the outer eye, the uveal tract, the retina and the ocular media, glaucoma, neuro-ophthalmology, and injuries. All chapters are followed by extensive bibliographic references.

W. L. B.

VISION RESEARCH (AN INTERNATIONAL JOURNAL). Board of Editors, T. Shipley, F. Crescitelli, H. J. A. Dartnall, Y. Le Grant, H. Schober and A. Sorsby. An Honorary Editorial Advisory Board includes the names of fifty distinguished specialists.

This is a new publication designed to fill the gap in scientific communication in the field of visual science. It is a publication of research by workers in physiology, chemistry, physics and neuropsychiatric zones of vision within a concept of the eye as a major organ in a complex but coordinated organic being.

Printed in English, each article is preceded by abstracts in English, French and German. The first issue, Vol. 1, No. ½, is paper bound, 7¼"x 9¾," approximately 200 pages of text illustrated by tables and line drawings. It contains articles on such subjects as color vision, luminous efficiency and electroretinograms of small animals. The first issue is dedicated to Commander Dean Farnsworth of the United States Navy, who was Scientific Liaison Officer of Naval Research in London at the time of the earliest conception of Vision Research. Several friends and colleagues have joined in this present memorial, that his inspiration may be perpetuated. It is fitting that the first article in this issue is by Commander Farnsworth.

The publisher is Pergamon Press Ltd, Headington Hill Hall, Oxford, England, and 122 East 55th Street, New York 22, N. Y. Annual subscription rates for libraries, government establishments, research laboratories, etc.: £10 ($30.00); for individuals who place their orders directly with the publishers and certify that the journal is for their personal use: £3 10s ($10.00).

W.L.B.

REHABILITATION OF A CHILD'S EYES. Edited by Herbert M. Katzin, M.D., F.A.C.S., and Geraldine Wilson, R.N. St. Louis, The C. V. Mosby Company, 1961. 107 pp. with glossary. 25 il. $3.75.

This is the third edition of a booklet written by Richard G. Scobee, M.D., for parents of children who have crossed eyes. The importance of such a source of information is realized when further information on treatment of strabismus is required for the necessary cooperation between parents, doctors and orthoptic technicians. Since the original book of this series was written, a new and vital branch of orthoptics called *pleoptics* has gained recognition. It originated in Switzerland, branched into Germany, and now is being used in this country.

The text is well written, clear and explicative, and many illustrations are used to complement the explanations of medical and technical terms.

W. L. B.

Index of Authors

January 1961 through December 1961

	PAGE
Adams, Ralph	16
Allen, Henry F.	44
Allen, James H.	898
Allen, Lee	200
Arnold, John D.	348
Ballintine, Elmer J.	136
Barnet, E. G.	126
Becker, Bernard	156
Behlke, Frank M.	539
Benedict, William L.	906
Boniuk, Milton	671
Borley, William E.	316
Braley, Alson E.	915
Brenman, Arnold King	724
Burian, Hermann M.	200
Chandler, Paul A.	563
Clark, Dean A.	47
Cleasby, Gilbert W.	609
Cluff, Leighton E.	33
Cooper, Edmond L.	595
Dabezies, Oliver H., Jr.	885
Day, Robert M.	871
Doerfler, Leo G.	283
Dukes, Charles D.	344
Eagles, Eldon L.	261, 283
Everett, William G.	197, 308
Fahlman, Burke	16
Farrior, Richard T.	123, 508
Finlay, James W.	308
Forrest, Arnold W.	694
Fox, Hilda H.	344
Gates, Edward M.	759
Girard, Louis J.	344
Goldman, Joseph L.	496
Goodhill, Victor	202, 241
Grant, W. Morton	152
Guilford, Frederick R.	114

PAGE

Henderson, John Woodworth 863
Hilding, A. C. 475
Hilding, David A. 297
Hogan, Michael J. 908
Holland, Monte G. 898
Hoople, Gordon D. 13

Ichinose, Herbert 898

Janda, Charles 848

Kiang, Nelson Yuan-Sheng 735
Kistner, Capt. Robert F. 775
Klien, Bertha 348
Kronfeld, Peter C. 133

Lawrence, Merle 246
Lierle, Dean M. 7
Linksz, Arthur 548

McCabe, Brian F. 246
McGee, T. Manford 222
McLean, John M. 878
McMahon, John W. 775

Maumenee, A. Edward 563, 917
Miller, Daniel 841
Miller, William W. 316
Moses, Robert A. 145

Naquin, Howard 873
Newell, Frank W. 348
Nielsen, Aage E. 759
Noell, Werner K. 576

Pratt, Loring W. 831

Rambo, J. H. T. 748
Reeh, Merrill J. 178
Roberts, R. Winston 163, 532
Romaine, Hunter H. 718
Rubin, William 778
Ruedemann, A. D., Jr. 576

Schmidt, Theodor F. A. 171
Senturia, Ben H. 230
Sharrer, Margaret C. 197
Silverstone, Sidney M. 495
Spaeth, Edmund B. 862
Spargo, Benjamin 348
Stuteville, Orion H. 848

PAGE

Theodore, Frederick H. 184

Urrets-Zavalia, Alberto 324

Vey, E. Kenneth 308

Walsh, Frank B. 885
Weaver, Delmar F. 759
Weller, Wendell A. 779
Welsh, John J. 539
Welsh, Louis W. 539
Williams, Albert H. 233
Wishik, Samuel M. 261
Wolsk, David 246
Wright, William K. 854

Zimmerman, Lorenz E. 51, 671

Index of Subjects

January 1961 through December 1961

PAGE

Academy Planned Tour (Editorial) 236
Acoustic Environment and Audiometer Performance (A Study of Hearing in Children, Part II) 283
Address of Guest of Honor 13
Adult Cleft Palate Cripple, Reconstructive Surgery for the 848
Akinesia of Injectable Anesthetics, Duration of Oculomotor 308
Allergic Reactivity of Iris Epithelium in Vitro as Demonstrated by Interference Cinemicrography 344
Allergy of the Eye, Bacterial 184
Anesthetics, Duration of Oculomotor Akinesia of Injectable 308
Applanation Tonometry, On 171
Armed Forces Institute of Pathology (Editorial) 355
Audiometer Performance, Acoustic Environment and (A Study of Hearing in Children) 283
Audiometers, Listing of 132, 240, 474
Audiometers: Listing Procedure and Agreements, Committee on Conservation of Hearing Subcommittee for Listing of (Editorial) 235
Audit for Calendar Year 1960, Annual (Financial Report) 616
Auditory Neurophysiology, the Use of Computers in Studies of 735
Awards for Original Investigation in Otolaryngology (Editorial) 130

Bacterial Allergy of the Eye 184
Bacteriology in Relation to Hospital Infections (Symposium: Epidemiology and Control of Hospital Infections) 44
Bilateral Congenital Glaucoma 178
Boards, Our Specialty 7
Book Reviews 829
Books for Asian Students (Letter to the Editor) 238
Brain Tumors, Nerve Deafness and 241
Buckling Procedures, Motility Complications in 718

Cancer of the Ear, Nose and Throat, Psychological Considerations in the Management of 841
Cancer of the Larynx and Laryngopharynx, Combined Radiation and Surgical Therapy for 496
Candidates—1961 633
Cartilage Knife for Removal of Longitudinal Cartilage Wedges 123
Cervicofacial Congenital Anomalies 508
Children, A Study of Hearing in 260
Chondrosarcoma of the Orbit 898
Ciliary Body, Lens and Retina Following Scleral Buckling Operations with Circling Polyethylene Tubes, Necrosis of the Iris 671
Cinemicrography, Allergic Reactivity of Iris Epithelium in Vitro as Demonstrated by Interference 344

PAGE

Cleft Palate Cripple, Reconstructive Surgery for the Adult 848
Closed Method of Semicircular Canal Fenestration, A 748
Combined Radiation and Surgical Therapy for Cancer of the Larynx and Laryngopharynx 496
Committee on Conservation of Hearing Subcommittee for Listing of Audiometers: Listing Procedure and Agreements (Editorial) 235
Complications in Buckling Procedures, Motility 718
Computers in Studies of Auditory Neurophysiology, The Use of 735
Congenital Anomalies, Cervicofacial 508
Congenital Glaucoma, Bilateral 178
Convention Activities (Sixty-Sixth Annual Meeting) 631
Convention Attendance (Sixty-Sixth Annual Meeting) 982
Council Minutes (Sixty-Sixth Annual Meeting) 930
Cysts of the Floor of the Mouth, Sequestration 831

Deafness, Brain Tumors and 241
De-Epitheleizer 779
Degeneration, The Electroretinogram in Central Retinal 576
Differential Diagnosis (Symposium: Exophthalmos) 863
Dihydrostreptomycin Toxicity, Streptomycin Sulfate and 222
Discussion (Symposium: Exophthalmos) 882
Dissociation and Primary Insufficiencies of the Vertically Acting Muscles, Reactions to 324
Duration of Oculomotor Akinesia of Injectable Anesthetics 308

Ear, Nose and Throat, Psychological Considerations in the Management of Cancer of the 841
Ear Pathology, The Technique for Acquiring and Preparing the Human Temporal Bone for the Study of Middle and Inner (Editorial) 784
Electroretinogram in Central Retinal Degeneration, The 576
Employment Registry for Scientists (Editorial) 615
Endophthalmos in Association with Neurofibromas of the Eyelid, Pulsating 885
Epidemiology and Control of Hospital Infections, Symposium 16
Erisophake, Modified 778
Errors in Tonography (Symposium: Tonography) 145
Excellence, The Pursuit of (Address of the Guest of Honor) 13
Exophthalmos Associated with Thyroid Dysfunction, Treatment of (Symposium: Exophthalmos) 871
Exophthalmos, Symposium: 862
Exotropia, The Surgical Management of Secondary 595
Experimental Studies on Some Little Understood Aspects of the Physiology of the Respiratory Tract and Their Clinical Importance (XVI Wherry Memorial Lecture) 475
Experimental Tonography (Symposium: Tonography) 152
Eyelid, Pulsating Enophthalmos in Association with Neurofibromas of the 885

Fenestration, A Closed Method of Semicircular Canal 748
Financial Report: Annual Audit for Calendar Year 1960 616
Fluid Barriers Within the Otic Capsule 246

General Principles of Lateral Osteotomy and Hump Removal 854
Glaucoma, Bilateral Congenital 178

PAGE

Glaucoma, Tonography in the Diagnosis of Simple (Open Angle) (Symposium: Tonography) 156
Glaucoma, Tonography in the Management of (Symposium: Tonography)... 163
Graduate Training, How Much Training in Research Should Be a Part of.... 906
Graft, The Mushroom 532
Granulomatosis, Wegener's 316
Guest of Honor, Address of (The Pursuit of Excellence)..... 13

Hearing in Children, A Study of..... 260
Hemorrhage, Traumatic Intracranial Vascular Lesions Producing Late Massive Nasal..... 759
Home Study Courses..... 237
Hospital Administrator, Infections Within Hospitals from the Standpoint of the (Symposium: Epidemiology and Control of Hospital Infections)..... 47
Hospital Infections, Bacteriology in Relation to (Symposium: Epidemiology and Control of Hospital Infections)..... 44
Hospital Infections, Epidemiology and Control of (Symposium)..... 16
How Much Training in Research Should Be a Part of Graduate Training.... 906
Hump Removal, General Principles of Lateral Osteotomy and..... 854
Hypotony, A Major Cause of..... 563

Infections, Bacteriology in Relation to Hospital (Symposium: Epidemiology and Control of Hospital Infections)..... 44
Infections in the Operating Pavilion, Prevention of (Symposium: Epidemiology and Control of Hospital Infections)..... 16
Infections, Staphylococcal (Symposium: Epidemiology and Control of Hospital Infections)..... 33
Infections Within Hospitals from the Standpoint of the Hospital Administrator (Symposium: Epidemiology and Control of Hospital Infections)..... 47
In Memoriam.....128, 239, 240, 358, 614, 783, 928
In Memoriam, Carl Heber McCaskey.....following 128
International Association of Secretaries of Ophthalmological and Otolaryngological Societies, Minutes of the Annual Meeting of the..... 788
Intracranial Vascular Lesions Producing Late Massive Nasal Hemorrhage, Traumatic 759
Introduction (Symposium: Exophthalmos)..... 862
Intubator, Middle Ear..... 233
Iris, Ciliary Body, Lens and Retina Following Scleral Buckling Operations with Circling Polyethylene Tubes, Necrosis of..... 671
Iris Epithelium in Vitro as Demonstrated by Interference Cinemicrography, Allergic Reactivity of..... 344
Iris, Nevoxanthoendothelioma (Juvenile Xanthogranuloma) of the..... 609

Jackson Memorial Lecture, XVII. The Registry of Ophthalmic Pathology: Past, Present and Future..... 51
Laryngeal Lymphatics, Surgical Alterations of the..... 539
Laryngopharynx, Combined Radiation and Surgical Therapy for Cancer of the Larynx and..... 496
Larynx and Laryngopharynx, Combined Radiation and Surgical Therapy for Cancer of the..... 496
Lateral Osteotomy and Hump Removal, General Principles of..... 854

PAGE

Lens and Retina Following Scleral Buckling Operations with Circling Polyethylene Tubes, Necrosis of the Iris, Ciliary Body 671
Lesions Producing Late Massive Nasal Hemorrhage, Traumatic Intracranial Vascular 759
Letter to the Editor (Editorial) 238, 926
Listing of the Audiometers 132, 240, 474
Lymphatics, Surgical Alterations of the Laryngeal 539

Major Cause of Hypotony, A 563
Management of Cancer of the Ear, Nose and Throat, Psychological Considerations in the 841
Management of Secondary Factors (Symposium: Exophthalmos) 878
McCaskey, Carl Heber (In Memoriam) ..... following 128
Middle and Inner Ear Pathology, The Technique for Acquiring and Preparing the Human Temporal Bone for the Study of (Editorial) 784
Middle Ear Intubator 233
Minutes, Council (Sixty-Sixth Annual Meeting) 930
Minutes of the Annual Meeting of the International Association of Secretaries of Ophthalmological and Otolaryngological Societies 788
Modified Erisophake 778
Motility Complications in Buckling Procedures 718
Mouth, Sequestration Cysts of the Floor of the 831
Muscles, Reactions to Dissociation and Primary Insufficiencies of the Vertically Acting 324
Mushroom Graft, The 532

Nasal Hemorrhage, Traumatic Intracranial Vascular Lesions Producing Late Massive 759
Necrology 790
Necrosis of the Iris, Ciliary Body, Lens and Retina following Scleral Buckling Operations with Circling Polyethylene Tubes 671
Nerve Deafness and Brain Tumors 241
Neurofibromas of the Eyelid, Pulsating Enophthalmos in Association with ... 885
Neurophysiology, The Use of Computers in Studies of Auditory 735
Nevoxanthoendothelioma (Juvenile Xanthogranuloma) of the Iris 609
New Audiometer—Hearing Aid: The Sound Pressure Equalizer 126
New Tracheostomy Tube, A 775
New Type Silicone Rod for Scleral Buckling, A 197
New Instruments 123, 126, 197, 230, 233, 775, 778, 779

Objectives and Preliminary Findings (Study of Hearing in Children, Part I) . 261
Obliteration of the Cavity and Reconstruction of the Auditory Canal in Temporal Bone Surgery 114
Ocular Vascular Disease, Percutaneous Renal Biopsy and 348
Oculomotor Akinesia of Injectable Anesthetics, Duration of 308
Official Notices (Sixty-Sixth Annual Meeting) 626
On Applanation Tonometry 171
Ophthalmic Pathology: Past, Present and Future, Registry of (XVII Jackson Memorial Lecture) 51
Orbit, Chondrosarcoma of the 898
Otic Capsule, Fluid Barriers within 246
Otoscope, A Surgical 230
Our Specialty Boards (Address of the President) 7

PAGE

Past Officers of the Academy 983
Pathology: Past, Present and Future, Registry of Ophthalmic (XVII Jackson Memorial Lecture) 51
Pathology, The Technique for Acquiring and Preparing the Human Temporal Bone for the Study of Middle and Inner Ear Pathology (Editorial) 784
Percutaneous Renal Biopsy and Ocular Vascular Disease 348
(Photo-collar and the Photo-surgical Transformer, The), Two Devices Which Facilitate Photography with the Zeiss Operation Microscope 724
Photography with the Zeiss Operation Microscope (The Photo-collar and the Photo-surgical Transformer), Two Devices Which Facilitate 724
Physiology of the Respiratory Tract and Their Clinical Importance, Experimental Studies on Some Little Understood Aspects of the 475
Pleoptics 548
Polyethylene Tubes, Necrosis of the Iris, Ciliary Body, Lens and Retina Following Scleral Buckling Operations with Circling 671
President, Address of (Our Specialty Boards) 7
Prevention of Infections in the Operating Pavilion (Symposium: Epidemiology and Control of Hospital Infections) 16
Primary Insufficiencies of the Vertically Acting Muscles, Reactions to Dissociation and 324
Principle of Tonography: Terms and Definitions, The (Symposium: Tonography) 133
Program in Brief (Sixty-Sixth Annual Meeting) 638
Prosthetic Articulations in Stapes Surgery 202
Protective Value of the Stapedius Reflex: An Experimental Study, The 297
Psychological Considerations in the Management of Cancer of the Ear, Nose and Throat 841
Pulsating Enophthalmos in Association with Neurofibromas of the Eyelid 885
Pursuit of Excellence, The (Address of the Guest of Honor) 13

Radiation About the Eye, Tumors Following 694
Radiation and Surgical Therapy for Cancer of the Larynx and Laryngopharynx, Combined 496
Reactions to Dissociation and Primary Insufficiencies of the Vertically Acting Muscles 324
Reconstruction of the Auditory Canal in Temporal Bone Surgery, Obliteration of the Cavity and 114
Reconstructive Surgery for the Adult Cleft Palate Cripple 848
Registries of Pathology (Editorial) 129
Registry of Ophthalmic Pathology: Past, Present and Future (XVII Jackson Memorial Lecture) 51
Renal Biopsy and Ocular Vascular Disease, Percutaneous 348
Research Should Be a Part of Graduate Training, How Much Training in 906
Respiratory Tract and Their Clinical Importance, Experimental Studies on Some Little Understood Aspects of the Physiology of the 475
Retinal Degeneration, The Electroretinogram in Central 576

Scientific Exhibits (Sixty-Sixth Annual Meeting) 662
Scientific Sections (Sixty-Sixth Annual Meeting) 640
Scleral Buckling, A New Type Silicone Rod for 197

PAGE

Scleral Buckling Operations with Circling Polyethylene Tubes, Necrosis of the Iris, Ciliary Body, Lens and Retina Following 671
Secondary Factors, Management of (Symposium: Exophthalmos) 878
Secretaries of Ophthalmological and Otolaryngological Societies, Minutes of the Annual Meeting of the International Association of 788
Section on Instruction (Editorial) 781
Section on Instruction (Sixty-Sixth Annual Meeting) 359
Semicircular Canal Fenestration, A Closed Method of 748
Sequestration Cysts of the Floor of the Mouth 831
Silicone Rod for Scleral Buckling, A New Type 197
Sixty-Sixth Annual Meeting 626
Special Scientific Programs (Sixty-Sixth Annual Meeting) 658
Stapedius Reflex: An Experimental Study, The Protective Value of the 297
Stapes Surgery, Prosthetic Articulations 202
Staphylococcal Infections (Symposium: Epidemiology and Control of Hospital Infections) 33
Streptomycin Sulfate and Dihydrostreptomycin Toxicity 222
Study of Hearing in Children 260
Surgery for the Adult Cleft Palate Cripple, Reconstructive 848
Surgical Alterations of the Laryngeal Lymphatics 539
Surgical Management of Secondary Exotropia, The 595
Surgical Otoscope 230
Surgical Therapy for Cancer of the Larynx and Laryngopharynx, Combined Radiation and 496
Surgical Treatment (Symposium: Exophthalmos) 873
Symposium: Epidemiology and Control of Hospital Infections 16
Symposium: Exophthalmos 862
Symposium: Tonography 133

Technical Exhibitors (Sixty-Sixth Annual Meeting) 668
Technique for Acquiring and Preparing the Human Temporal Bone for The Study of Middle and Inner Ear Pathology, The (Editorial) 784
Temporal Bone Surgery, Obliteration of the Cavity and Reconstruction of the Auditory Canal in 114
Thyroid Dysfunction, Treatment of Exophthalmos Associated with (Symposium: Exophthalmos) 871
Tonography: Terms and Definitions, The Principle of (Symposium: Tonography) 133
Tonography, Symposium: 133
Tonographic Technique (Symposium: Tonography) 136
Tonography, Errors in (Symposium: Tonography) 145
Tonography, Experimental (Symposium: Tonography) 152
Tonography in the Diagnosis of Simple (Open Angle) Glaucoma (Symposium: Tonography) 156
Tonography in the Management of Glaucoma (Symposium: Tonography) 163
Tonometry, On Applanation 171
Toxicity, Streptomycin Sulfate and Dihydrostreptomycin 222
Trabeculotome, The (An Instrument for Trabeculotomy ab externo) 200
Tracheostomy Tube, A New 775
Transformer), Two Devices Which Facilitate Photography with the Zeiss Operation Microscope (The Photo-collar and the Photo-surgical 724

PAGE

Traumatic Intracranial Vascular Lesions Producing Late Massive Nasal Hemorrhage 759
Treatment of Exophthalmos Associated with Thyroid Dysfunction (Symposium: Exophthalmos) 871
Treatment, Surgical (Symposium: Exophthalmos) 873
Tumors Following Radiation About the Eye 694
Two Devices Which Facilitate Photography with the Zeiss Operation Microscope (The Photo-collar and the Photo-surgical Transformer) 724

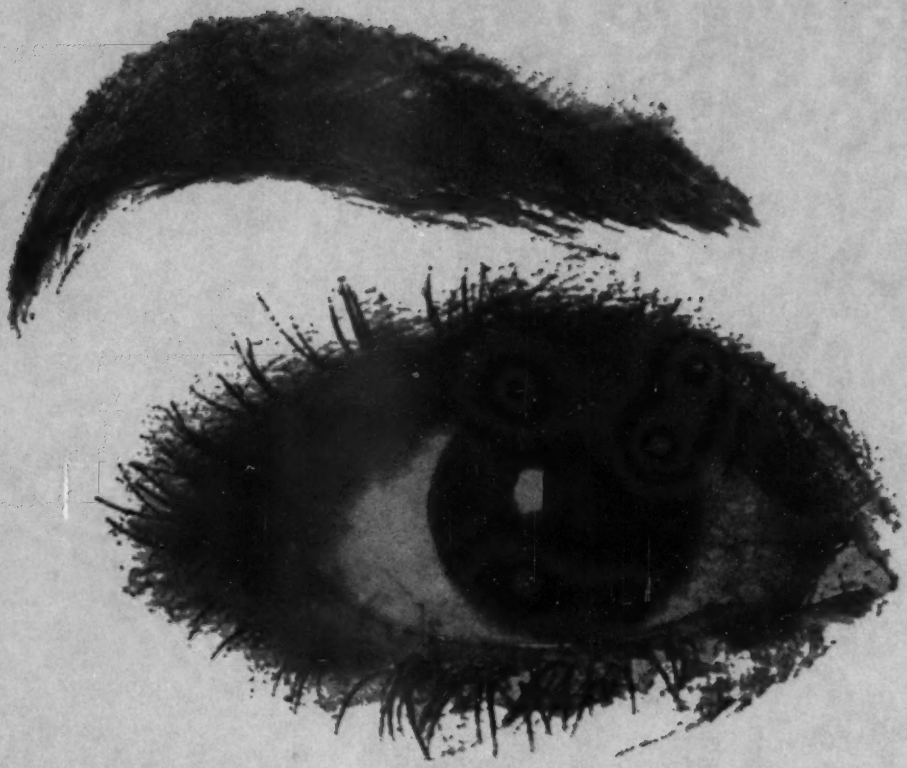
Use of Computers in Studies of Auditory Neurophysiology, The 735

Vascular Lesions Producing Late Massive Nasal Hemorrhage, Traumatic Intracranial 759
Vertically Acting Muscles, Reactions to Dissociation and Primary Insufficiencies of the 324

Wegener's Granulomatosis 316
Wherry Memorial Lecture XVI 475
Why Las Vegas? (Editorial) 925

Xanthogranuloma) of the Iris, Nevoxanthoendothelioma (Juvenile 609

Zeiss Operation Microscope (The Photo-collar and the Photo-surgical Transformer), Two Devices Which Facilitate Photography with the 724



Blephamide* Ophthalmic Liquifilm*

... a basic advance in the management of blepharitis

BLEPHAMIDE *Ophthalmic Liquifilm cannot be seen by the viewer nor does it impair the view of the user.* Liquifilm combines the convenience and cosmetic acceptability of drops with the prolonged contact of ointments ... a new Ophthalmic vehicle with the advantage of both drops and ointments without the disadvantage of either.

New BLEPHAMIDE Ophthalmic Liquifilm is a basic advance in the management of blepharitis. The potent and proven antiseborrheic/antistaphylococcal formula treats the underlying disorder while the rapid-acting anti-inflammatory/decongestant relieves pain and inflammation and improves the eye's appearance. Convenient, well tolerated virtually non-stinging, BLEPHAMIDE provides truly effective, one-prescription 24-hour therapy.

BLEPHAMIDE contains: Sodium sulfacetamide, 10.0%; prednisolone acetate 0.2%; phenylephrine HCl, 0.12%. The Liquifilm vehicle is polyvinyl alcohol and polysorbate 80 (buffered to a pH of 6.8).

Dosage: Optimum dosage is 2-4 times daily. (Complete dosage instructions, cautions and contraindications are available on request.)

Supply: 5 cc. plastic dropper bottles—on Rx only.

* *Trademark*

ALLERGAN PHARMACEUTICALS *Santa Ana, California*